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Submitted by

Wm. G. Fastie Principal Investigator

December 1972

Baltimore, Maryland 21218

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Special Report on the Ultraviolet Brightness of Celestial Targets for Apollo 17. NASA/MSC

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gators Services.

We submit herewith a special Principal Investigator! s report, prepared by Richard C. Henry (co-investigator), giving an evaluation of the ultraviolet flux from the stars that we expect to measure in the various inertial hold positions and PTC scans in lunar orbit and on trans-earth coast during the Apollo 17 mission.

Wm. G. Fastie

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ULTRAVIOLET BRIGHTNESS OF CELESTIAL TARGETS FOR APOLLO 17

Submitted by

Wm. G. Fastie Principal Investigator

Department of Physics The Johns Hopkins University Baltimore, Maryland 21218

NASA/MSC Contract NAS 9-11528 Task I. Principal Investigator Services

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I. INTRODUCTION

The technical Supporting Studies Plan DRD No. MA-091T under NASA/MSC Contract NAS 9-11528, "Task I. Principal Investigator Services", calls for studies to give maximum scientific support to the flight of Apollo 17 and to the analysis of the data received. In pursuit of this goal, we have made an evaluation of the ultraviolet flux from the stars expected in the various inertial-hold pointing directions and PTC scans during the Apollo 17 mission. These directions and PTC scan poles for the nominal mission are listed in Table I. In subsequent sections we discuss the methodology used in evaluating the flux, and the individual targets themselves. An overview of the targets and scans may be obtained by referring to Figure 1. In that figure, the sky is represented in celestial coordinates (Right Ascension and Declination), with North (the North Celestial Pole) at the top. The left and right edges of the map are at 18^h of Right Ascension. which is near the sun (circle at lower left). The position of the Earth in the sky (viewed from the moon) for December 12 through 18, is indicated, and also the position of the Moon (as viewed from the Earth) for December 17, 18, and 19. The field-of-view of the Apollo UVS is indicated for each of the inertial hold targets. A thirty-degree avoidance circle has been drawn around the sun.

TABLE I
INERTIAL HOLD AND PTC TARGETS

Target		UVS	Line	of Si	ght			+,)	X axis	dire	ctio	,
Lyman Alpha Minimum	04 ^h	35 ^r	n 00 ^s	+30	00'	00"	09 ^h	48 ^m	20 ⁸	+28 ^C	51'	51"
Earth	14	10	33	-18	15	39	09	31	00	-14	00	00
Moon	06	58	00	+22	00	00	11	20	00	+04	00	00
First Sleep PTC		-	 				10	00	00	+07	00	00
Coma Cluster	12	58	00	+26	00	00	16	36	51	-12	25	21
Mode III 60 x 14	06	27	35	-73	36	31	15	21	52	-35	14	34
Mode III 60 x 60	04	31	58	-71	51	27	15	26	30	-40	47	53
a Eri	01	38	33	-58	10	28	19	00	00	-33	01	59
α Eri, α Gru PTC							00	55	00	+08	00	00-
Second Sleep PTC							20	20	00	+88	00	00
Dark North	14	00	00	+22	00	00	17	40	00	-17	31	14
North Ecliptic Pole	19	00	00	+78	00	00	17	55	01	+11	01	56
Mode IV			· 	· ·			21	12	14	+60	3 2	23
Virgo Cluster	12	30	00	+12	00	00	07	51	08	+39	05	31
Dark South	01	05	00	-10	00	00	20	30	00	-25	00	0Ó
NEP, YPeg PTC				.			04	55	00	+46	00	00
Spica	13	24	00	-11	00	00	18	02	00	-30	00	00
Spica, ητ Ma							17	40	00	+0 5	00	00
Third Sleep			<u>.</u>	_			05	45	00	-47	00	00
					_		<u> </u>					

The solid lines in the figure represent the various PTC scans. The background shading represents the accumulated expected ultraviolet flux over five-by-five degree blocks. Data are taken from the Smithsonian Astrophysical Observatory Catalog, with no allowance for interstellar reddening. This may be compared with Figure 2, which shows the same data taken from the Bright Star Catalog, with allowance for interstellar reddening (except for a small portion of the stars). In Figure 2, the Right Ascension of the edge of the plot is zero hours. A grid of galactic coordinates has been imposed on the figure. The absolute intensity scale is not the same as in Figure 1.

II. METHODOLOGY

The far ultraviolet spectrometer (UVS) has a field-ofview about 12° by 18°. When it is pointed, for example, above the horizon of the moon it receives radiation from the lunar atmosphere and also from the distant sky. The ultraviolet flux from the sky we assume to be entirely due to direct radiation from stars in the field of view. For targets containing large numbers of stars, such as Lyman Alpha Minimum, this is a fair assumption. For targets in dark regions of the sky, however, additional sources of radiation, such as starlight scattered from interstellar dust, might be important, so the flux values we report here must be regarded as lower limits. The flux was determined in two ways, and is listed in Table II. In the first column of Table II is the flux obtained by adding up the expected flux from stars listed in the "SAO" Star Catalog, with no allowance for interstellar absorption. (The stars involved are illustrated in the figures for the various targets, where the number plotted is the visual magnitude of the star. The size of the plotted number depends, rather weakly, on the ultraviolet flux from the star.) In the second column is the flux obtained by adding the expected flux from stars in the Bright Star Catalog, taking account of interstellar absorption and reducing the flux

TABLE II

EXPECTED FLUX FROM INERTIAL HOLD TARGETS

Target	Flux, in Photo	ons (cm ² sec A) ⁻¹
	Bright Star Catalog	Smithsonian Star Catalog
Lyman Alpha Minimum	166	1109
Earth	30	66
Moon	234	357
Coma Cluster	19	28
Mode III 60 x 14	83	171
Mode III 60 x 60	43	103
α Eridani	2728	2272 (85 [*])
Dark North	8.3	20
North Ecliptic Pole	42	115
Virgo Cluster	24	44
Dark South	4.4	17
Spica	7805 (1 ^m 2 B2 star)	3631 (22 [*]) (0. 96 B1 star)

^{*}deleting the one bright star.

of supergiants by one magnitude. The calibration in each case was kindly provided by C. F. Lillie from OAO data. The orientation of the field-of-view was chosen for most of the targets so that the instrument would be shaded from the sun during the observation.

For the PTC scans, and the Mode IV Zodiacal Light
Scan, figures are provided giving the brightness expected as
a function of position along the path of the PTC scan. Sections
ten degrees long are taken. The width of the band is taken as
12°. The celestial and galactic positions for each bin are indicated. If, in Table I, the +X axis position has a south declination, the scan is made from top to bottom in the figure. If the
+X axis points north, the scan is made from bottom to top in
the figure.

A list of all stars that are brighter than 50 photons $(cm^2 sec A)^{-1}$ is given as Appendix A.

III. THE TARGETS AND SCANS

In this section, we briefly comment on each of the targets and the various PTC scan paths. Detailed information on each target and each PTC scan is provided in the Tables and Figures.

- 1. Lyman Alpha Minimum. This is a region that
 Gary Thomas has found to emit the least Lyman Alpha radiation
 of any part of the sky. It is rather close to the galactic plane,
 and is near the bright Pleiades star cluster.
- 2. Earth. The earth is also observed during the first sleep PTC on TEC.
 - 3. The Moon.
- 4. <u>Coma Cluster</u>. The position of the cluster of galaxies is indicated by the circle in the figure. We hope to set a limit on redshifted Lyman Alpha radiation from the cluster.
- 5. Mode III 60 x 14. This target is observed during the moments when it is just above the lunar horizon, in 60 x 14 nautical mile lunar orbit, and also, as a calibration, for a period on trans-earth coast. The mode provides a good means for observing Xenon in the lunar atmosphere.
- 6. Mode III 60 x 60. As in 5 above, but 60 x 60 nautical miles lunar orbit.

- 7. Alpha Eridani. This very bright star will be measured as a cross-calibration between Apollo 17 and other UV experiments that have flown. It totally dominates the sum of all other stars in the field of view (see Table II).
- 8. <u>Dark North</u>. As shown in Table II, this is expected to be one of the darkest regions of the sky observed. It is hoped to set limits on extragalactic radiation entering our galaxy. This target is near the North Galactic Pole.
- 9. North Ecliptic Pole. The UVS is pointed directly up out of the plane of the solar system. This target is primarily for the purpose of determining the Lyman Alpha intensity in this direction.
- 10. <u>Virgo Cluster</u>. This is another cluster of galaxies, several degrees in extent. The UVS is in sunlight during the measurement, for unavoidable thermal reasons.
- 11. <u>Dark South</u>. The remarks under "Dark North" apply here also, except it is the South Galactic Pole region that is observed.
 - 12. Spica. Another very bright star, similar to α Eridani.
- 13. First Sleep PTC. This scan path has been chosen to pass through the earth as viewed from the spacecraft. Time variations in the UV brightness of the earth may be observed. The extremely bright constellation Orion is also scanned.

- 14. Second Sleep PTC. This PTC scan path passes through North Ecliptic Pole, Dark North, and Coma Cluster. It is a scan from galactic pole to galactic pole.
- 15. Third Sleep PTC. This scan passes through Dark South, and also through the bright stars α Grus and α Pavo.
- 16. α Eri, α Gru. This scan passes through the bright stars α Eridani and α Grus, and also the Orion region.
- 17. NEP, λ Peg. This scan passes through the north ecliptic pole, and also through the bright star γ Peg.
- 18. Spica, ηU Ma. This scan passes through the two bright stars Spica (α Virginis) and η Ursae Majoris. The latter star has been previously observed by JHU experimenters from an Aerobee rocket.

IV. CONCLUSION

Data have been presented bearing on the UV brightnesses to be expected during the PTC scans and while pointed at fixed targets during the Apollo 17 mission. These data will aid in real-time decision-making, and in the subsequent analysis of the data.

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KEY TO THE STAR-LIST TABLES

HR

Bright Star Catalog number.

NAME

Star Name.

RA (1973) DEC

Celestial Coordinates, precessed to 1973.

B-V

The B-V color of the star.

SP

Spectral type.

LUM

Luminosity Class

DMAG

If the star is double, the difference in magnitude

between the two components.

SEP

If the star is double, the separation of the two

components in seconds of arc.

V

The V magnitude of the star.

VU

The 1500 A magnitude of the star (Vega is zero.)

FLUX

The 1500 A flux in photons (cm² sec A)⁻¹. An asterisk indicates that the flux has been reduced because the star falls near the end of

the target (see Figure 14).

LONG

The galactic longitude of the star.

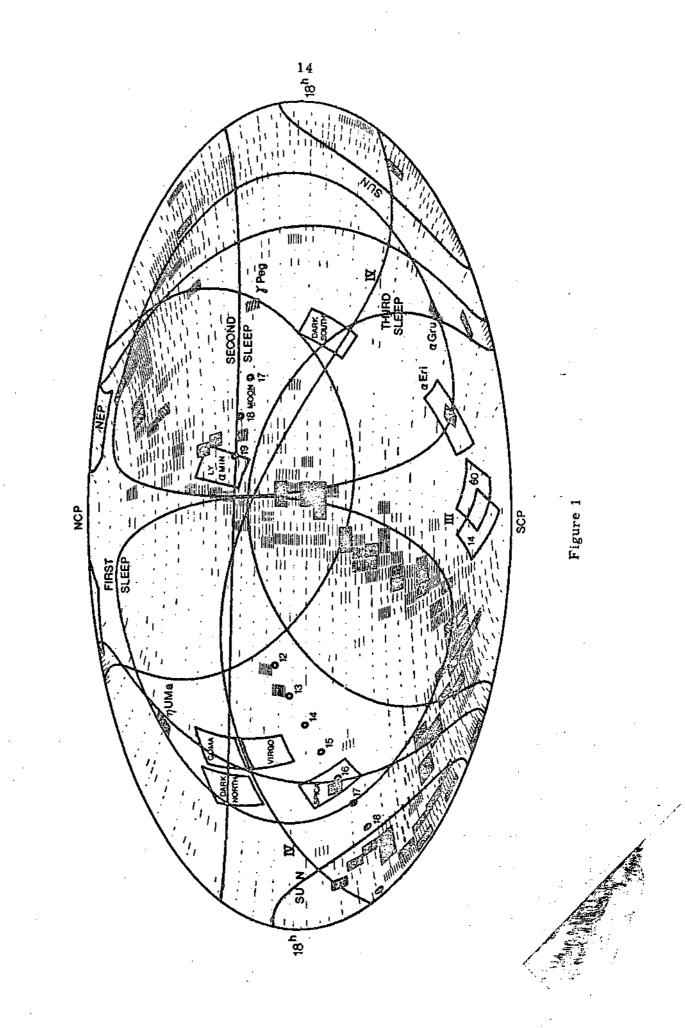
LAT

The galactic latitude of the star.

E(B-V)

The color excess.

The final unlabelled column gives, for inertial targets, the distance in degrees for nearby stars (for the sharp edge of the field of view) and the distance from the point where the full stellar flux would be seen by the instrument, for stars on the graduated edge of the field of view. Distances are truncated.



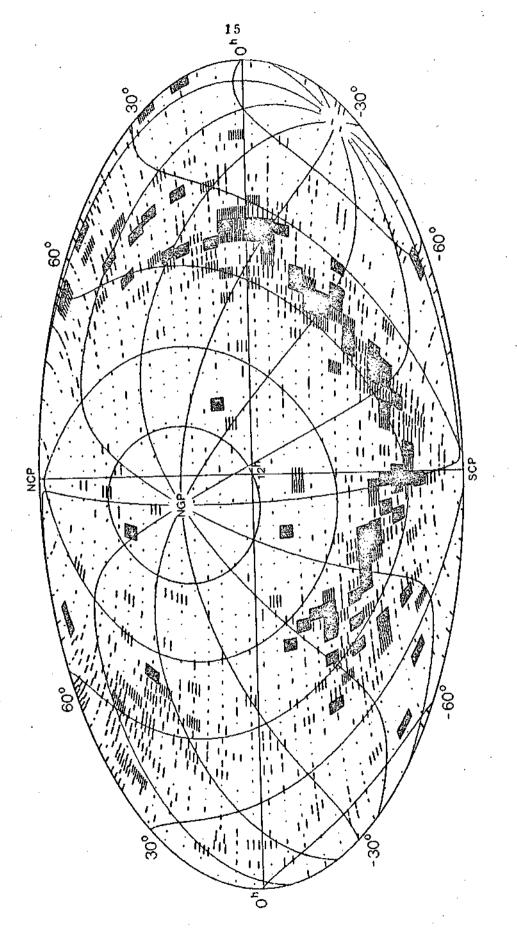


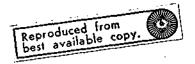
Figure 2

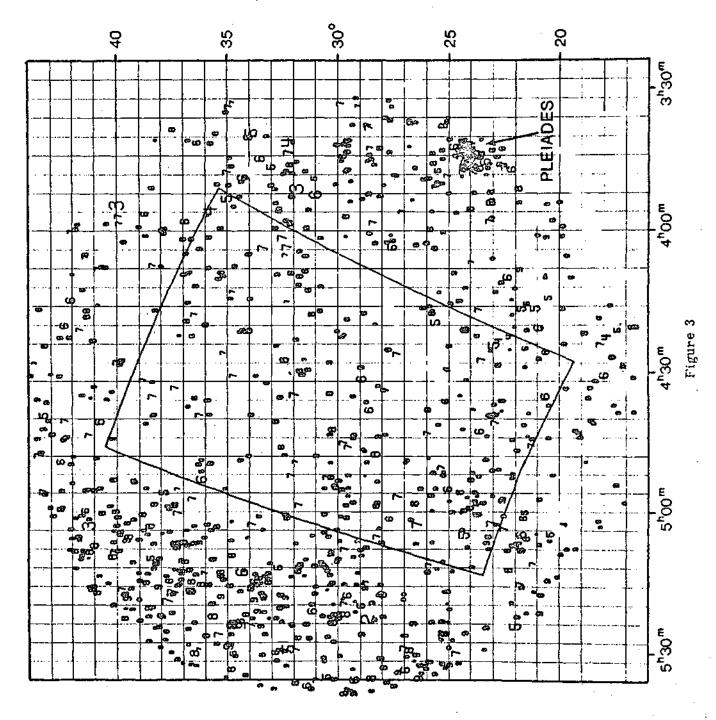
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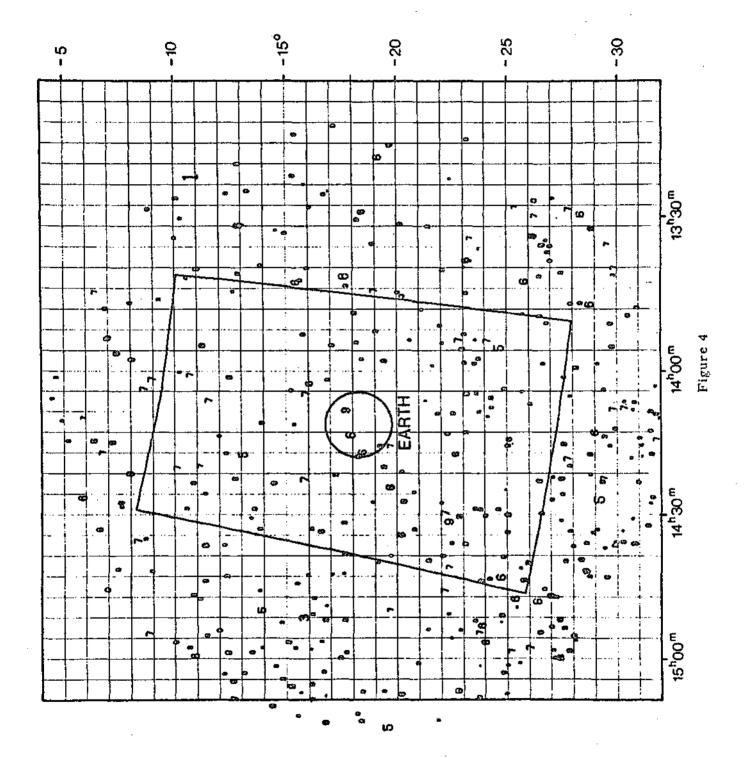
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Table IV



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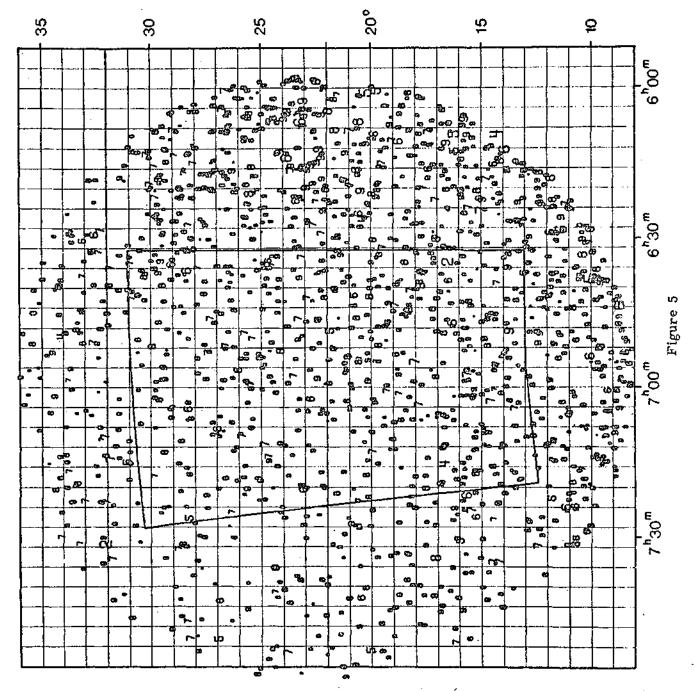
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ST STAR	310£C 6-V SP	0 -0.18 80.5 6 0.03 A2 6 -0.09 89.5 7 -0.18 83	3 -C-19 02-55 V 8 -C-20 01-55 V 3 -C-18 85 -C-18 88	39 37 -C-19 83 V 49 32 -C-14 81 V 49 32 -C-23 62 1 48 2 -C-15 81 B I 52 54 -O-19 82 I	57 52 017 82 N 57 52 01 01 52 59 -0.18 03 I 59 39 -0.12 81 I	54 37	62 12 -0.19 83 1 1 54 53 +0.23 02 02 1 5 55 53 -0.19 83 1 1 6 1 32 -0.10 05 E V	04 19 -C.14 83 04 14 -C.23 09.5 04 14 -C.15 83 54 21 -C.16 65 62 52 -C.05 89	50 30 -0.16 86. 50 34 -0.11 82 52 13 -0.15 84 58 36 -0.24 82 50 5 -0.26 62	69 55 -C-13 87 P 48 49 -C-02 40 1 56 20 -U-17 83 1 49 45 -C-20 82 V 41 32 -C-23 62 1
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BRIGHTEST STAR	97310£C 8-V SP	46.5 -9 40 -0.18 BC.5 50.1 -7 31 -C.2C B2 57.6 44 56 0.03 A2 57.9 37 11 -C.08 B9.5 56.6 -35 17 -0.18 B3	17.1 -19.57 02.5 V 19.3 -30 3 -0.19 02.5 V 19.6 -34 8 -0.20 01.5 V 27.4 -32.33 -0.18 85 36.9 -43 9 -0.11 88	7.9 -39.37 -C.19 83 V 46.7 -46.32 -C.19 81 V 52.3 -49.32 -C.23 82 I 52.5 -48 2 -C.15 81 B I 56.1 -52.54 -0.19 82 I	57.5 -49 9 -0.17 82 N 20.6 -57 52 01 01 Y 39.5 -52 49 -0.18 63 I 40.0 -59 39 -0.12 81 I 41.6 -53 1 -0.18 84 I	44.0 -54.37 0.64 AO 40.4 -56.40 -6.18 B2 NE V 54.4 -60.32 -0.10 B8 I 56.3 -59 7 -0.17 B3 I 10.3 -58 51 -6.20 B2 I	10.7 -62 12 -0.19 '83 21.3 -54 53 -0.25 02 50.9 -54 27 -0.59 05 19.9 -55 53 -0.13 83 31.1 -61 32 -0.10 05 E V	41.3 -64 19 -C.14 83 42.0 -64 14 -C.23 09.5 45.9 -64 14 -C.15 83 19.8 -54 21 -C.16 65 34.5 -62 52 -C.05 89	6.7 -50 30 -0.16 867 7.0 -50 34 -0.11 82 10.2 -52 13 -0.15 84 13.7 -58 36 -0.24 82 26.6 -50 5 -0.20 62	32.3 69 55 -C.13 87 P 44.8 -48 49 -C.02 40 1 44.8 -56 20 -0.17 83 1 5.3 -49 45 -C.20 b2 V 47.9 -41 32 -C.23 62 1
CAN BRIGHTEST STAR	A(1973)DEC B-V SP	5 46.5 -9 40 -0.18 BC.5 5 50.1 -7 31 -0.20 B2 5 57.6 44 56 0.03 A2 5 57.9 37 11 -0.08 B9.5 5 56.6 -35 17 -0.18 B3	6 17.1 -19 57 02.5 V 6 19.3 -30 3 -0.19 02.5 V 6 19.6 -34 8 -0.20 01.5 V A 6 27.4 -32 33 -0.18 85 P 6 36.9 -43 9 -0.11 88 . I	7 7.9 -39 37 -C.19 83 V 7 46.7 -46 32 -0.14 81 V 7 52.3 -49 32 -0.23 82 I 7 52.5 -48 2 -0.15 81 B I 7 56.1 -52 54 -0.19 82 I	7 57.5 -49 9 -0.17 82 N 8 20.6 -57 52 01 9 39.5 -52 49 -0.18 03 1 8 40.0 -59 39 -0.12 81 1 8 41.6 -53 1 -0.18 84	L 8 44.0 -54 37 0.04 AO	9 15,7 -62 12 -0.19 183 1 1 1 9 21,3 -54 53 -0.25 82 1 1 1 9 55,9 -54 27 -0.39 85 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10 41.3 -64 19 -0.14 83 10 42.0 -64 14 -0.23 09.5 10 45.9 -64 14 -0.15 83 N II 19.8 -54 21 -0.16 65 N II 34.5 -62 52 -0.05 89	12 6.7 -50 30 -0.16 86' 12 10.2 -50 34 -0.11 82 12 10.2 -52 13 -0.15 84 12 13.7 -58 36 -0.24 82 12 20.6 -50 5 -0.26 62	12 32.3 69 55 -C.13 87 P 12 4C.0 -48 49 -C.02 40 12 44.8 -56 2C -0.17 83 1 13 5.3 -49 45 -C.20 82 V 13 47.9 -41 32 -C.23 62
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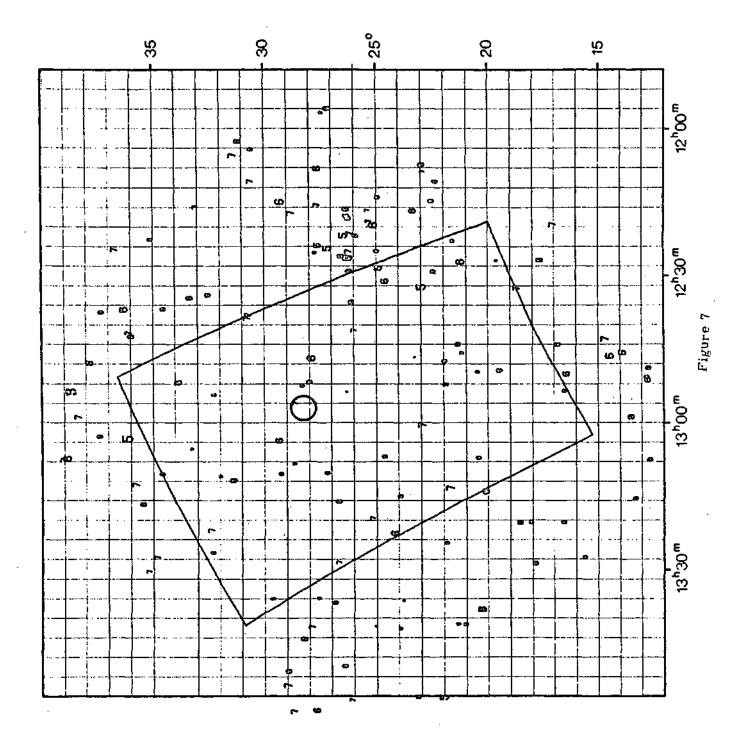
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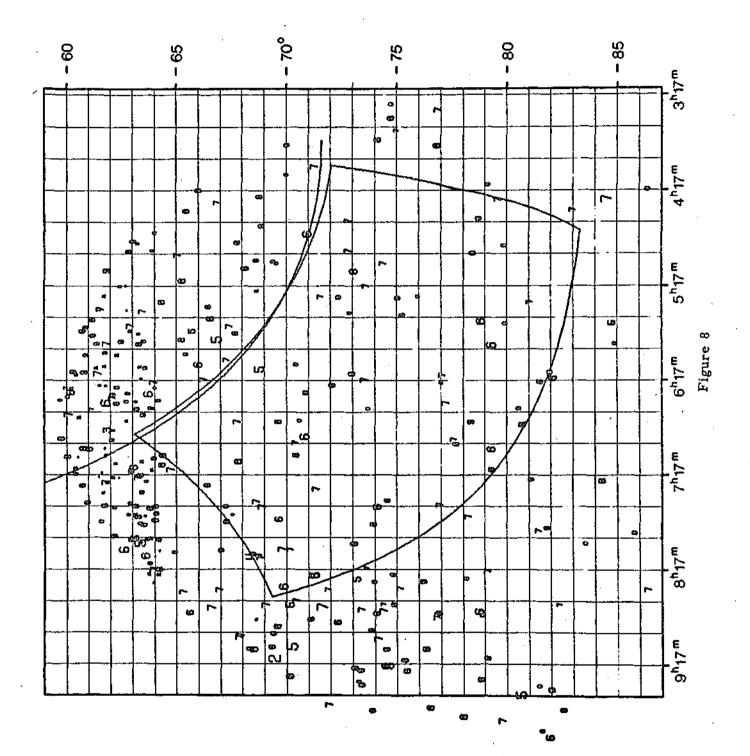
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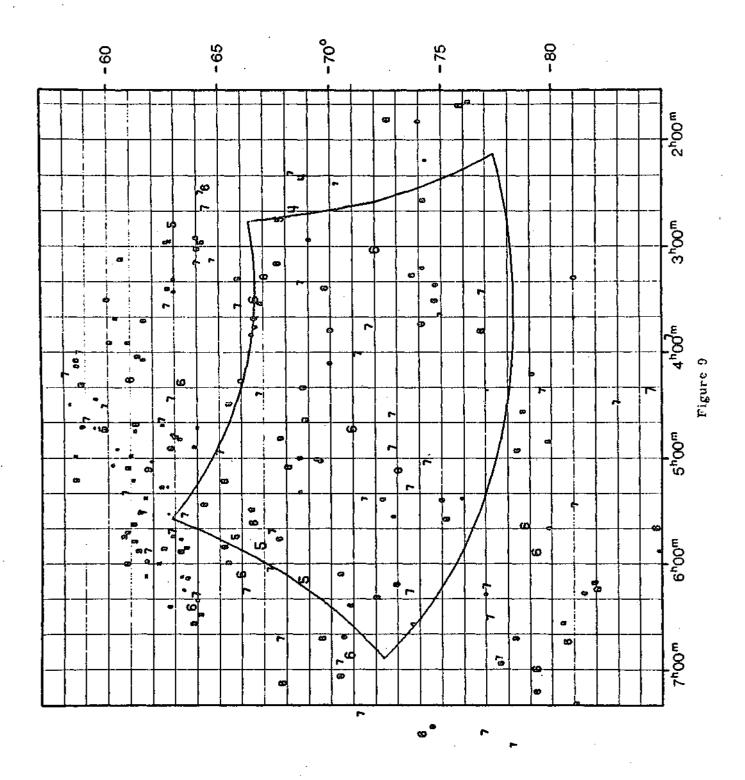
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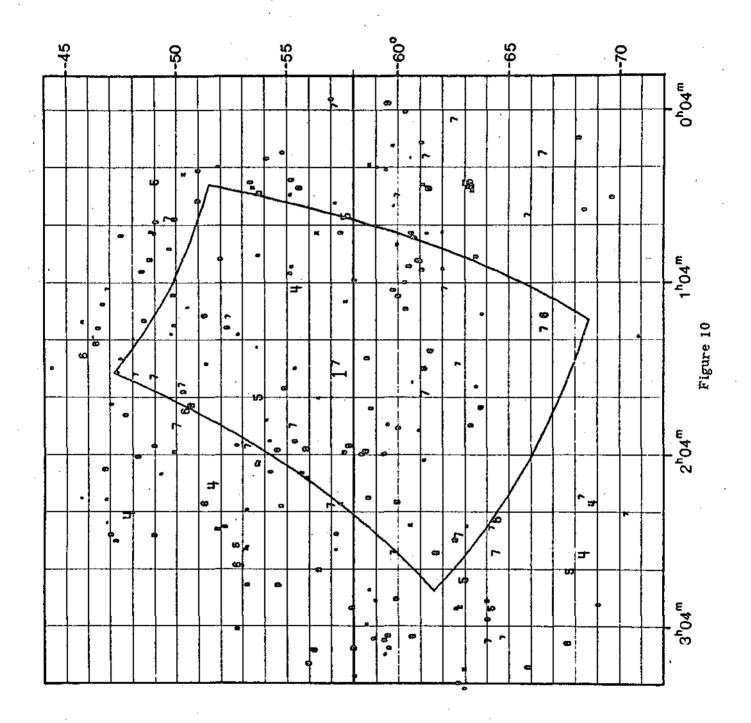
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	FLUX	37.8	8,9	2.7	7.0	12.2	0.5	4.91	1.7	2629.0	*6.4	79.6	3.9	4.1	2.8	3.3	0.4
	۲,	3.77	5.25	5.46	7.47	6.30	6.93	3.27	6.45	44.C-	5.20	2.96	5.97	6.17	6.17	5.73	÷C-9
	>	4.33	4.53	5.13	5.60	4.30	6.20	3.93	6.20	0.40	5.00	3.50	6.30	6-70	6.53	5.20	4.90
	SEP		9		÷	.		8	2.8			w,					•
	S	37.7	37	'n	13.	23.		Ö	Ň			85.3					
	DMAG	0.0	0.0	0.4	4.2	7.2		2.B	3.0			4.6					
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	SP LUN .	88	42 V	A2	48 P	40 IV	A 3	. > 98	40	95 IV	AO	88	89	88	68	ΑÚ	A5 V
		8	4	4	∢	-0.00 AO IV	⋖	æ	⋖	æ	0.04 AO					0.10 AU	0.13 A5 V
	B-V SP	8 -0.06 8	6 0.14 A	10 0.02 A	38 0.21 A	36 -0.00 A	50 0.10 A	23 -0.10 8	32 0.05 4	23 -0.17 8	39 0.04 A	38 -0.12	25 -0.04	43 -0.06	24 -0.09	54 0.10	0.13
	B-V SP	-0.06	6 0.14 A	10 0.02 A	38 0.21 A	36 -0.00 A	50 0.10 A	23 -0.10 8	32 0.05 4	23 -0.17 8	G.04 A	38 -0.12	25 -0.04	43 -0.06	24 -0.09	0.10	-
GET	B-V SP	-63 6 -0.06 8	-63 6 0.14 A	-63 10 0.02 A	-56 38 0.21 A	-57 36 -0.00 A	-60 50 0.10 A	-55 23 -0.10 B	-66 32 0.05 A	-57 23 -0.17 8	-53 39 0.04 A	-51 38 -0.12	-64 25 -0.04	-62 43 -0.06	-64 24 -0.09	-62 54 0.10	-64 10 0.13
TARGET	SP	30.3 -63 6 -0.06 8	30.3 -63 6 0.14 4	31.5 -63 10 0.02 A	-56 38 0.21 A	42.1 -57.36 -0.00 A	-60 50 0.10 A	7.2 -55 23 -0.10 8	16.1 -66 32 0.05 A	-57 23 -0.17 8	45.1 -53 39 0.04 A	15.5 -51 38 -0.12	27.4 -64 25 -0.04	-62 43 -0.06	39.0 -64 24 -0.09	48.4 -62 54 0.10	0.13
ANI TARGET	RA(1973)DEC B-V SP	30.3 -63 6 -0.06 8	C 30.3 -63 6 0.14 4	0 31.5 -63 10 0.02 A	43.5 -56 38 0.21 A	0 42.1 -57 36 -0.00 A	-60 50 0.10 A	7.2 -55 23 -0.10 8	1 16.1 -66 32 0.05 A	36.7 -57 23 -0.17 8	1 45.1 -53 39 G.04 A	15.5 -51 38 -0.12	2 27.4 -64 25 -0.04	32.9 -62 43 -0.06	39.0 -64 24 -0.09	48.4 -62 54 0.10	-64 10 0.13
	B-V SP	TUC 0 30.3 -63 6 -0.06 8	. TUC C 30.3 -63 6 0.14 4	0 31.5 -63 10 0.02 A	PHE 0.40.5 -56.38 0.21 A	PHE 0 42.1 -57 36 -0.00 A	-60 50 0.10 A	PHE 1 7.2 -55 23 -0.10 B	1 i6.1 -66 32 0.05 A	ERI 1 36.7 -57 23 -0.17 B	1 45.1 -53 39 0.04 A	ERI 2 15.5 -51 38 -0.12	2 27.4 -64 25 -0.04	32.9 -62 43 -0.06	39.0 -64 24 -0.09	HOR 2 48.4 -62 54 0.10	HUR 2 58.3 -64 10 0.13
ALPHA ERIDANI TARGET	RA(1973)DEC B-V SP	0 30.3 -63 6 -0.06 8	SETA . TUC C 30.3 -63 6 0.14 4	0 31.5 -63 10 0.02 A	X1 PHE 0.43.5 -56.38 0.21 A	ETA PHE 0 42.1 -57 36 -0.00 A	0 57.2 -60 50 0.10 A	LETA PHE 1 7.2 -55 23 -0.10 B	1 16.1 -66 32 0.05 A	ALPHA ERI 1 36.7 -57 23 -0.17 B	1 45.1 -53 39 0.04 A	2 15.5 -51 38 -0.12	2 27.4 -64 25 -0.04	2 32.9 -62 43 -0.06	2 39.0 -64 24 -0.09	NU HOR 2 48.4 -62 54 0.10	2 58.3 -64 10 0.13



T E(8-V)	42 0.02 47 49 0.09 29	57 133 2000 42 0.04 16 0.03 42 0.04 55 0.06 16 0.02	37 0.13 2 0.15 52 0.13 36 0.03 40 0.02 24 0.12 18 0.07 58 0.02		45 0.13 0.05 113 0.09 0.11 0.09 0.11
4	1 + 1 60 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 m m m m m m m m m m m m m m m m m m m	1 1 2 5 6 7 1 1 2 6 7 1 1		1117 3319 3319 1117 1112 3412
LONG	297 5 290 5 275 2 137 2	250 25 250 25 250 25 250 25 250 25 25 25 25 25 25 25 25 25 25 25 25 25	214 3 202 3 1992 3 202 4 202 4 204 5 204 5 204 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 5 196 196 196 196 196 196 196 196 196 196	~ ∞00000	2003 2003 2003 2003 2003 2003 2003 2003
FLUX	76.9 2629.0 79.6 85.5	173.0 59.1 107.6 294.8 187.0 62.2 212.4 126.2	463.7 56.44 102.3 129.3 53.9 81.6 701.7 2247.7	551.	2062.3 292.6 69.4 107.5 1052.9
À	6.54 4.94 6.94 6.94 6.94	2014 8 20 20 20 20 20 20 20 20 20 20 20 20 20	0.50 A B B B B B B B B B B B B B B B B B B	4 444	11.05 3.10 4.16 4.08 4.18 1.30 1.80
>	40 4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	######################################	क्षेत्रक्षे एवक्न	ó & v. v. v. 4	24 & & 4 iv & 5 iv & 6
SEP	0.8 3 86.3 0.6	10.6 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	32.2	59.8 4 3.0 3 1.0 3 2.1 3	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
DMAG	2.8	. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	2.0	8 0 M M M M M M M M M M M M M M M M M M	4 4 WWO 8 W DO
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C U-V SP	C.117 85 C.127 88 C.128 88 C.128 88	51	0.28 80.55 F. C.13 81 C.28 82 C.21 82 C.22 82 C.22 82 C.22 82 C.22 82 C.22 81 PE V	34 -5.13 87 8 54 -6.14 83 4 4 -6.22 82 6 46 -6.20 81.5 V 55 -6.14 85 V 16 -6.19 81.5 V	19 -0.21 09.5 20 -0.26 80 37 -0.19 81 11 -0.17 81 24 -0.22 81 2 -0.22 81
7310LC 0-V SP	23 -0.15 06 24 -0.17 05 38 -0.12 88 33 -0.15 82 52 -0.12 88.5	1	3 12 -0.28 80.5 3 24 -0.13 81 82 8 3 31 -0.15 81 V 0 10 -0.21 81 V 3 56 -0.22 82 V 1 48 -0.21 81 PE V 6 19 -0.22 82	34 -5.13 87 8 54 -6.14 83 4 4 -6.22 82 6 46 -6.20 81.5 V 55 -6.14 85 V 16 -6.19 81.5 V	9 -0.21 09.5 0 -0.26 80 1 -0.19 81 1 -0.17 81 4 -0.18 80 2 -0.22 81
7310LC 0-V SP	7.2 -55 23 -0.15 %6 36.7 -51 24 -0.15 %6 15.5 +51 38 -0.12 #8 17.6 65 33 -0.15 #8 16.9 +33 52 -0.12 #8.5	29.9 53 51 80 80 85 85 85.5 -14 17 -0.22 81 85 85 85 85.5 -14 17 -0.22 81 82 85 85 85 85 85 85 85 85 85 85 85 85 85	18.3 -13.12 -0.28 80.5 20.4 -0.24 -0.13.81 21.4 3.31 -0.15.81 22.3 -0.10 -0.21.82 22.3 -13.56 -0.22.82 23.1 -2.24 -0.19.5 92 23.3 1.48 -0.21.81 PE V 23.7 6.19 -0.22.82	24.6 28 34 -5.13 N7 1 25.0 21 54 -6.14 H3 V 25.4 3 4 -6.22 H2 I 26.5 1 46 -6.20 01.5 V 29.3 5 55 -6.19 H3.5 V 29.8 3 16 -6.19 H3.5 V	36 -0 19 -0.21 09.5 31.9 18 50 -0.26 80 31.9 18 50 -0.26 80 32.2 -1 11 -0.17 81 33.3 9 27 -0.18 80 33.6 9 54 80 33.7 -6 2 -0.22 81
A(19/3/DEC 0-V SP	1 7.2 -55 23 -0.15 86 1 30.7 -57 23 -0.17 85 2 15.5 +51 38 -0.12 88 3 17.6 65 33 -0.15 82 4 10.9 +33 52 -0.12 88.5	4 20.9 53 51	5 18.3 -13 12 -0.28 80.5 5 20.3 8 24 -0.13 81 W 5 20.4 -0 24 -0.13 81 W 5 21.4 -0 10 -0.21 82 W 5 22.3 -13 56 -0.22 82 5 23.1 -2 24 -0.19 60.5 5 23.3 1 48 -0.21 81 PE W 5 23.3 6 19 -0.22 82	5 24.6 28 34 -5.13 M7 I I S 26.0 21 54 -6.14 M3 V S 25.4 3 4 -6.22 M2 II S 25.5 1 4 -6.22 M2 II S 25.3 5 55 -6.14 M5 II S 29.3 5 55 -6.14 M5 V S 29.3 5 16 -6.19 M1.5 V	5 30.6 -0 19 -0.21 09.5 3 31.9 18 30 -0.26 80 62 82.5 -1 21 -0.17 81 85 83.3 9 27 -0.18 80 85 33.6 9 54 80 85 83.7 -6.2 85 80 85 83.7 -6.2 85 80 80 85 83.7 -6.2 85 80 80 85 83.7 -6.2 85 80 80 80 80 80 80 80 80 80 80 80 80 80
RA(1973)DEC U-V SP	7.2 -55 23 -0.15 %6 36.7 -51 24 -0.15 %6 15.5 +51 38 -0.12 #8 17.6 65 33 -0.15 #8 16.9 +33 52 -0.12 #8.5	29.9 53 51 80 80 85 85 85.5 -14 17 -0.22 81 85 85 85 85.5 -14 17 -0.22 81 82 85 85 85 85 85 85 85 85 85 85 85 85 85	18.3 -13.12 -0.28 80.5 20.4 -0.24 -0.13.81 21.4 3.31 -0.15.81 22.3 -0.10 -0.21.82 22.3 -13.56 -0.22.82 23.1 -2.24 -0.19.5 92 23.3 1.48 -0.21.81 PE V 23.7 6.19 -0.22.82	AU 5 24.6 28 34 -5.13 M7 I AU 5 25.4 2 4 -6.22 M2 I KI 5 25.4 3 4 -6.22 M2 I 5 26.5 1 46 -6.20 M1.5 V RI 5 29.3 5 55 -6.14 M5 I RI 5 29.8 3 16 -6.19 M1.5 V	041 5 35.6 -0 19 -0.21 09.5 04.1 5 35.6 -7 20 -0.26 80 62 14.0 5 31.9 18 39 -0.26 80 62 62 631.9 137 -0.19 81 62 631.9 5 32.2 -1 11 -0.17 81 63 63 631 5 33.6 9 54 60.8 80 631 5 33.6 9 54 80 80 631 5 33.7 -6 2 -0.22 81
RAL19731DLC U-V SP	HI 1 30-7 -55 23 -0.15 86 KI 1 30-7 -57 24 -0.17 85 KI 2 15-5 +51 38 -0.12 88 3 17-6 65 33 -0.15 82 KI 4 10-9 +33 52 -0.12 88.5	R 4 29.9 53 51 6 4 31.1 -45 0 -0.20 83 V 4 56.5 -14 17 -0.22 81 V 8 5 6.6 41 11 -0.18 83 V 8 5 6.6 41 11 -0.18 83 V 1 5 7.9 -8 47 -6.20 82 V 9 5 11.7 -16 13 -0.11 89 P I 8 5 14.5 34 17 -0.02 68 A I 1 5 13.2 -6 13 -0.02 68 A I 1 5 10.3 -6 52 -0.11 85 I	EP 5 18.3 -13 12 -0.28 80.5 KI 5 20.4 -0.28 81 W 82 KI 5 20.4 -0.24 -0.13 81 KI 5 20.4 -0.24 -0.21 82 KI 5 22.3 -13 56 -0.22 82 KI 5 23.3 -13 56 -0.22 82 KI 5 23.3 -148 -0.21 81 PE W 81 5 23.3 -148 -0.21 81 PE W 81 5 23.3 -148 -0.22 82	114 TAU 5 24.6 28 34 -5.13 H7 I 114 TAU 5 25.4 3 4 -6.22 H2 I 51 ORI 5 25.4 3 4 -6.22 H2 I 32 ORI 5 29.3 5 55 -6.14 H5 I 33 URI 5 29.8 3 16 -6.19 H1.5 V	(1 5 30.6 -0 19 -0.21 09.5 (1 5 30.6 -7 20 -0.26 80 10 5 31.9 18 30 -0.26 80 (1 5 32.2 -1 11 -0.17 81 (1 5 33.3 9 27 -0.18 80 (1 5 33.6 9 54 80 (1 5 33.7 -6 2 -0.22 81

HAIGHTEST STARS

Calputate start from

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	E(8-V)	0.05	0.09	0.10	0.05	0.12			90.0		90.0	0.03		0.03		0.22	0.16			0.03	0.24	0.05			0.01
	LAT	-19 24	N			4	16	97	-17 2	16	02 1 -	m	-18 5	,	4 I 19		4	•	0 5 +	N	40		+14 1	7	~
	LONG	209 49		49	32	4	~	~	207 15	205 43	3 1	2	3	<u>ب.</u>			٠	3	88 22	60	N 20	6 2	32	9	350 0
	FLUX	89.4			•	٠	66.7	125.4	53.9		÷	:	60		72.1	m	÷	,	83.4	51.7	112.6	129.3	633.0	126.2	746.9
	3	4.28	•		•	0	42	7	4.83	8	Ň	4	٠	80	3.74	4.83	4	7	3.96	â	္	30	1.76	*	6
	>	5.73	•	•		4.50	2.00	4.20	6.20	06**		•	3.20			5.40	06.4	60.4	5+30	4.50	4.50	5.30	3.10	3.03	1.70
	SEP	5.3		0.3 5			÷	3.3 3	•		25.0 3			1.2			56.5 3.		~	1.0 3	20.3 4	3.1	13.9		28+8
	DMAG	3.2		7.0				3+7			6.3			4.1		.:	4.5		•	1.3	4.3		4.7	ı	9.8
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STARS	y €	-0.23	-2.15	-1.24	-0.23	60.3-			-0.22	-6.22	-2.16	B4.0-	90.0-	-0.18	2+45	40.00	#O O I	-0.13		-0.12	40.04	-0.23	-5.25	-5.12	-0.14
BRIGHTEST STARS	13)0EC	16 5-						-4	-2 50						37 56					36 23	47 24		70 25		
UK I	RAL 197310EC	5 35.3				5 37+8			5 39.3		5 40.2				16.8					49.4	58.9	C	13.8	52.3	6.5
HA GRU	ea.			081		ORI	_		•				25 194		CYG 21		Ç	C.C.	ر د	CX 9.X3			CEP 21		
ALPHA ERI, ALPHA GRU	E W V N		1.25	SIGMA		CMEGA	Z UT 3	2 ET A			133	2.7	THETA	٠	a .	25	LINESA	EPSILCN	51	LAMREA	59	60	3513	5.3884	ALPHA
ALPHA E	ë.	1911	1923	1331	1933	1734			1950	2867	1993	7093			7763	7769	7844	7852	7923	7963	8047	8053	8238		

346.73 *** FLUX 325 323 296 279 245 597 152 183 165 24.) 205 RA (1973) CEC 235 285

4970.0

SATURATES AT

75.0

ONE PLCT STEP .

ALPHA ERI, ALPHA GRU

PTC SCAN

TOTAL FLUX . 26945.334 PHUTU'IS (CM2 SEC A)-1

E(8-V)	90.0	10.0	0.02	0.06			0.09		0.07	10.0	0.09	0.12			0.0		90.0	0.03	0.03	0.22	0.03
LAT	-28 56 -28 37	2.5	23	4	-23 28	-1 M	L	4			7			453		+ 4 52				5 ~ -	
LONG	151 17 152 56				166 40								192 25			56 22				65 5	
FLUX	58.8 72.6	55.4	68.2	53.2	187.7	72.6	81.2	572.7	51.2	5,96.5	64.8	58.1	57.3	84.4	135.4	189.6	51.2	51.2	67.5	53.9	51.2
3	60°6	3.62	3.27	3.67	2.17	3.06	3.62	96*0	4.12	1.93	4.23	4.75	3.46	2.20	3.43	3.57	4.12	4.12	3.82	4.83	4.12
>	3.60 0.60 0.60	4 400	3.80	4.10	2+80	3.60	4.20	1.60	4.80	2.90	5.10	4.83	4.10	2.23	4.30	5+30	4.93	5.00	92.4	5.40	2.00
SEP	5.4 127.6 4				117.0	9.0			59.8 4				112.7 7		23.4	2.1			1.2		
DMAG	4.6				6.6				5.6				4.5		7.0	3.8			4.1		-
E O	>>-		111		-	Ξ	>	111	>	1,	>	_	^I	>	>	^	>	>	>	۸.	
LUM	>>-	7 >	111	NN IV		111	>	111	>	P IV	>		E IV	>	>	>	ъ ~	>	>		w
SP	68 83 83	3.0 40 40	20	ž	87				83	₽5 P	42	81	87 E	CA	5.2	BC.5	3	٠	. A £8	61 E IV	m
		3.0 40 40	20	NN 98 90		08 88	.i2 tt3	i3 67	83	₽5 P	42	81	7 E	CA	~	BC.5	•16 B3 E	ю.	.18 B	7	•19 B3
dS V−6	68 83 83	22 -C.11 86	16 -5.57 87	51 -C+06 H6 NN	1 -0.09 87	58 -C.O8 88	54 -0.12 B3	34 -C.i3 67	54 -0-14 83	7 -2.17 B2 P	52 -C.15 #2	56 -0.07 B1 B	87 E	48 ±C+C2 A3	48 -0.15 62	5.9 80.5	31 -C.16 83 E	.18 83	3:) -C.18 B	.06 81	5 47 -0.18 B3
as v-	95 - 0-113 63 9 - 0-11 68	43.5 24 1 TC.11 BB	44.2 24 16 -5.07 87	44.7 23 51 -C.06 H6 NN	45.9 24 1 -0.09 87	47.6 23 58 -2.08 88	40.0 22 54 -0.12 H3	24.6 28 34 -0.13 87	26.0 21 54 -0.14 83	36.0 21 7 -2.17 82 P	38.1 25 52 -0.15 62	56.3 25 56 -0.07 B1 B	27.4 , 23 14 -0.12 87 E	33.5 26 48 ±C.C2 A)	7.6 20 48 -0.15 52	16.6 22.59 BC.5	49.9 .22 31 -C.16 . 83 E	5.7 23 32 -6.18 83	14.1 25 30 -C.18 B	20.9 24 21 -0.06 81	51.8 25 47 -0.18 B3
RA(1973)DeC u-V SP	2 41.9 27 35 -0.13 83 2 44.4 27 9 -0.11 68	3 43.5 24 1 TC.11 BD	3 44.2 24 16 -5.07 87	3 44.7 23 51 -C.06 H6 NN	3 45.9 24 1 -0.09 87	3, 47.6 23 58 -0.08 88	4 40.0 22 54 -0.12 H3	5 24.6 28 34 -C.13 87	5 26.0 21 54 -0.14 83	5 36.0 21 7 -2.17 82 P	5 38.1 25 52 -C.15 82	5 56.3 25 56 -0.07 B1 B	6 27.4 , 23 14 +5.12 87 E	H 15 33.5 26 48 +0.02 A)	K 18 7.6 20 48 -0.15 52	L 19 16.6 22 59 BC.5	L 19 49.9 -22 31 -C.16 H3 E	L 20 5.7 23 32 -6.18 83	14.1 25 30 -C.18 B	20 20.9 24 21 -0.06 81	51.8 25 47 -0.18 B3
dS V−6	41.9 27 35 -0.13 83 48.4 27 9 -0.11 08	TAN 3 43.5 24 1 TOLL BO TAN 3 43.6 24 22 TO.11 86	TAU 3 44.2 24 16 -5.57 87	3 44.7 23 51 -C.06 H6 NN	3 TAU 3 45.9 24 1 -0.09 87	27 TAU 3, 47.6 23 58 -0.08 88	TAU 4 40.0 22 54 -0.12 83	TAU 5 24.6 28 34 -C.13 BT	TAU : 5 26.0 21 54 -0.14 83	4 TAU 5 36-0 -21 7 -2-17 82 P	125 TAU 5 38.1 25 52 -C.15 62	TAU 5 56.3 25 56 -0.07 81 B	GEN 6 27.4 23 14 -5.12 87 E	H 15 33.5 26 48 +0.02 A)	K 18 7.6 20 48 -0.15 52	L 19 16.6 22 59 BC.5	L 19 49.9 -22 31 -C.16 H3 E	L 20 5.7 23 32 -6.18 83	14.1 25 30 -C.18 B	VUL 20 20.9 24 21 -0.06 81	21 51.8 25 47 -0.18 B3
RA(1973)DeC u-V SP	AKI 2 41.9 27 35 -0.13 83	10 TAU 3 43.5 24 1 TC:11 80	25 TAU 3 44.2 24 16 -5.07 87	TAU 3 44.7 23 51 -0.06 B6 NN	ETA TAU 3 45.9 24 1 -0.09 87	27 140 3, 47.6 23 58 -0.08 88	TAU TAU 4 40.0 22 54 -0.12 83	BET1 TAU 5 24.6 28 34 -0.13 B7	114 TAU 5 26.0 21 54 -0.14 83	2674 TAU 5 36.0 21 7 -2.17 82 P	125 TAU 5 38.1 25 52 -C.15 62	139 TAU 5 56.3 25 56 -0.07 B1 B	GEM 6 27.4 23 14 +0.12 87 E	ALPHA CRH 15 33.5 26 48 -C.62 A)	152 HCR 18 7.6 20 48 -0.15 52	2 VUL 19 16.6 22 59 BC.5	12 'WUL 19 49.9 22 31 -C.16 83 E	L 20 5.7 23 32 -6.18 83	20 14.1 25 30 -0.18 B	25 VUL 20 20.9 24 21 -0.06 81	PHG 21 51.8 25 47 -0.18 B3

SECOND SLEEP PIC SCAN BAIGHTEST STARS

P ខែឧ វិមារ	
SLEEP	
SECONO	
SCAR	
91C	

UNE PLCT STEP #

SATURATES AT 4975.0

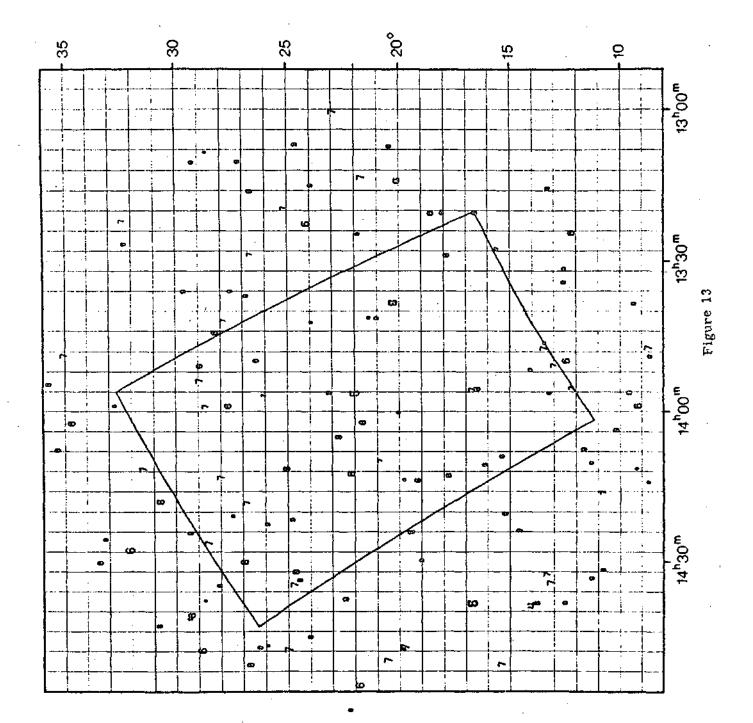
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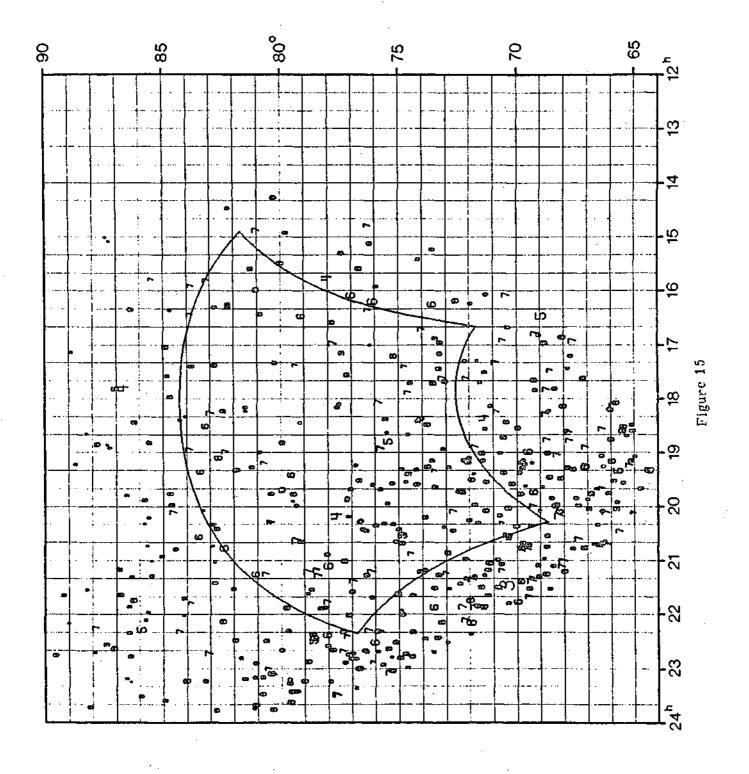
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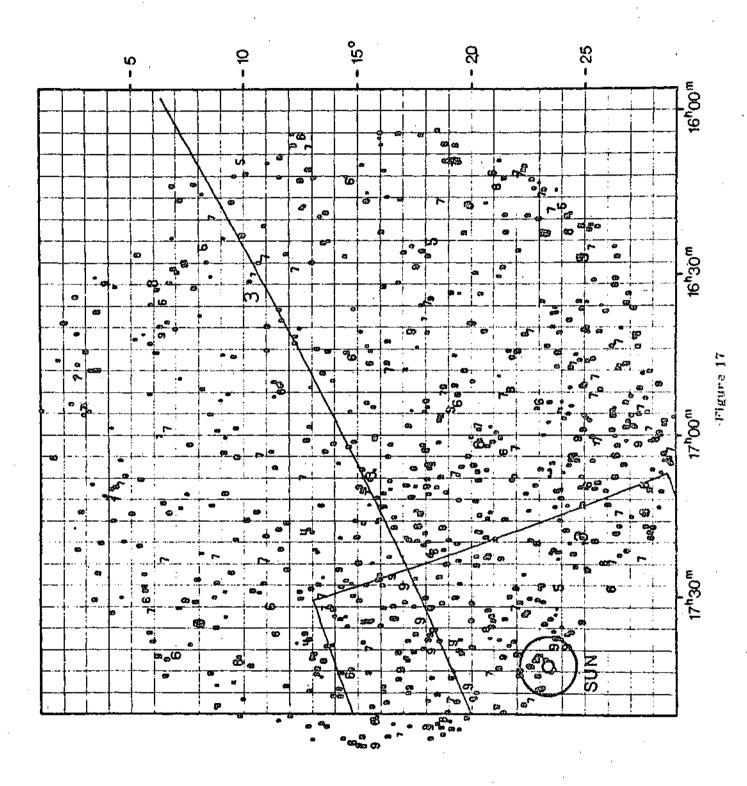
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PHOTONS (CM2 SEC A)-1

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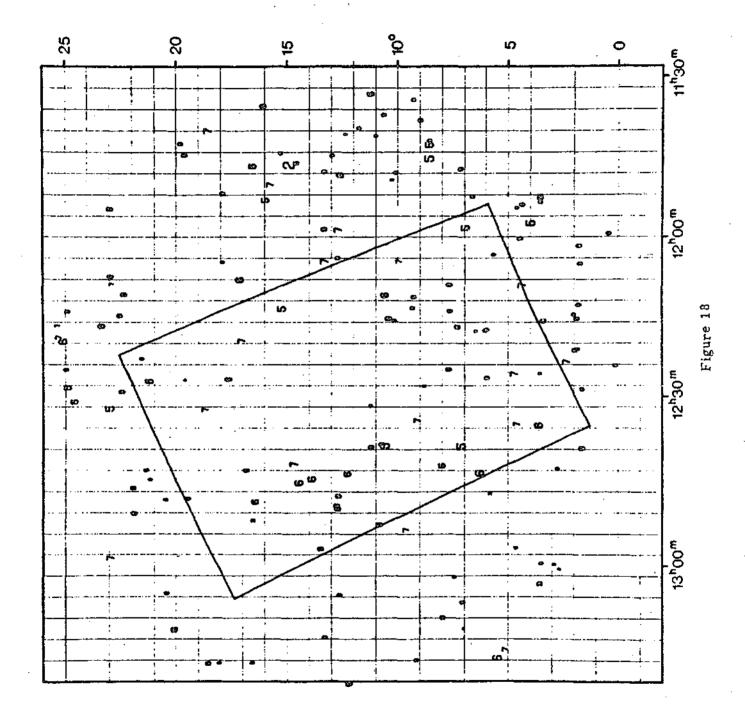


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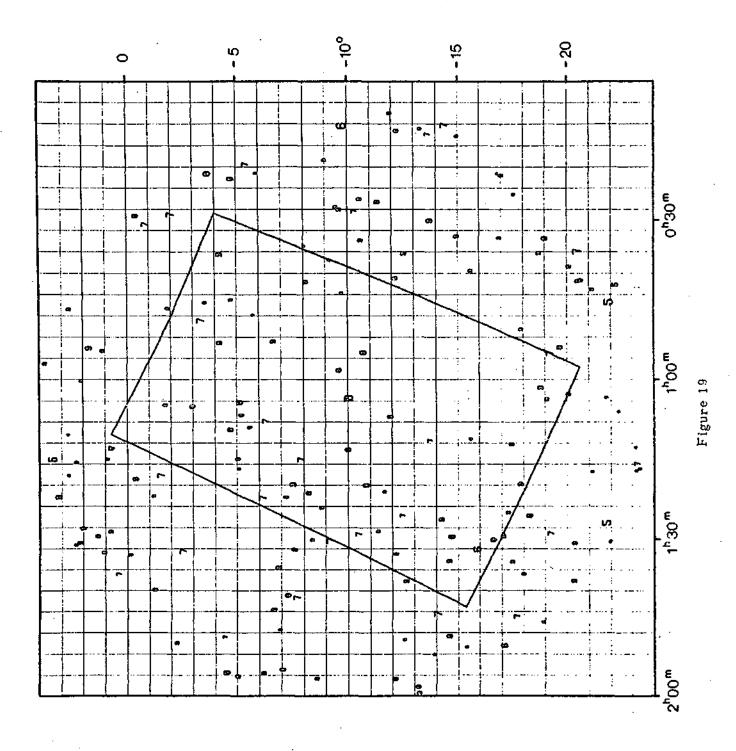
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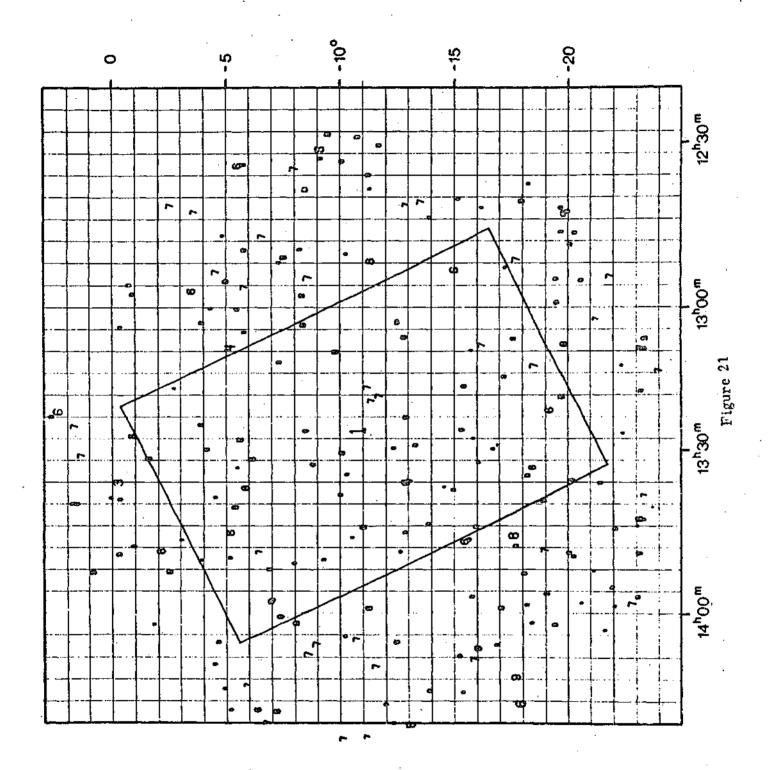
TOTAL FLUX = 9.83.677 PHOTONS (CM2' SEC A)-1

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TARGET

TARGET

SPICA



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E(8-V)	0.04 0.01 0.02 0.03	0.02	00.02	0.03	0.15	00000	0.03 0.08 0.24
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FLUX	98.6 7789.8 448.5 1022.2 409.0	50.1 1027.4 296.3 283.0 107.0	213.6 93.2 74.1 148.5 1868.6	94.0 1126.5 59.1 50.1 78.4	178.4 52.6 514.6 79.6 246.3	976.2 53.4 74.1 56.2 85.0	126.2 51.2 74.4 102.7
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G-V SP	2 54.8 38 27 +2.11 99.5 PV 3 23.8 -11 0 -0.24 31 V 3 47.9 -41 32 -0.23 02 IV 3 46.5 49 27 -0.19 83 V 3 48.0 -42 20 -0.21 82 PNE V	3 53.3 -32 51 85 3 53.9 -47 9 -0.23 H2 3 56.6 -41 58 -0.22 82 3 57.0 -44 40 -0.21 62 4 4.4 -41 3 -0.20 03	4 27.7 -45 56 -0.19 83 IV. 4 21.4 -39 22 -0.19 83 V 4 24.4 -45 5 -0.15 83 III 4 30.8 -50.20 -0.19 82 V 4 33.8 -42 1 -0.21 81.5 NE V	4 36-1 -49 17 -0.15 85 . V 4 47.1 -47 16 -0.21 82 II 4 49.9 -43 28 ~u.i6 86 III . Q 5 3.3 -46 56 85 IV 5 14.8 -60 51 -0.06 09 V	7 8.7 65 44 -0.13 86 7 21.5 -62 50 82 7 23.1 -56 21 -0.13 81 7 23.7 -66 39 -0.10 88 5 49.7 -62 12 -0.15 31	1 17.4 43 49 -0.20 B3 IV 1 17.4 43 49 -0.61 U7 V 1 15.5 -19 35 -0.18 B3 P V I 41.1 51 3 -0.18 B3 IV 1 45.8 49 11 -0.13 B3 IN	1 52.3 -37 29 -0.12 88 1 51.8 25 470.18 83 E 2 20.2 12 3 -0.16 82 E 2 23.9 1 13 -0.04 81 PE
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SPICA, ETA UNA BRIGHTEST STARS

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101AL FLUX # 19952-495 PHUTONS (CM2 SEC A)-1



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BIGLIGHTEST STARS

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SATURATES AT 4970.0

75.0

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TOTAL FLUX = 18804.333 PHUTONS (CMZ SEC A)-1

APPENDIX A

THE ULTRAVIOLET FLUX
OF THE BRIGHTEST STARS

ULTRAVIOLET FLUX OF THE BRIGHTEST STARS

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E(B-V)	0.02 0.04 0.01	0.18	0.05	0.03	0.09	6000 40000	0.31	0.13 0.41 0.09 0.18	0.08
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FLUX	317.0 744.3 324.9 68.1	74.4 59.3 1466.1 76.9 2629.0	178.4 51.5 223.6 79.6	235.4 58.8 52.2 72.6 286.8	85.5 66.2 51.7 215.4	135.3 96.8 55.7 58.2 53.2	187.7 72.6 152.8 119.4	1062.1 111.5 169.6 64.5 58.8	79.6 173.0 85.4 56.2 258.1
5	1.58 2.46 3.53 4.03	4 4 4 6 8 8 8 4 4 4 4 4 4 4 4 4 4 4 4 4	64664 64664 88748	2.83 3.94 3.06 1.54	######################################	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2.17 3.06 3.70 4.19	1.70 4.24 2.82 3.87	2.96 4.03 2.73
>	2.60 2.80 3.60 4.30	44760	4 8 8 8 4 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9	44.00 4.460 2.600 2.100	4.80 4.20 4.00 4.90	3.80 4.30 4.30 4.10	2.60 3.60 2.60 4.60	2.80 3.40 4.00 4.20 4.20	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
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ds >-	-0.10 88 11 -0.22 82 1V -0.20 82 V -0.14 85 V	-0.06 82 V -0.15 85 V -0.19 80 E IV -0.10 86 V	-0.04 B1 PE III.V -0.18 B2 V -0.16 B3 P IV -0.12 B8 V	-0.13 -0.13 -0.14 -0.17 -0.11	-0.15 82 E V -0.08 88 P -0.06 85 E -0.13 85 II	0.06 81 III	-0.09 87 -0.08 88 11 0.12 81 8 1 0.31 0 PE V	-0.18 80.5 -0.12 83 -0.03 83	-0.12 88.5 V -0.22 B1 NE V -0.20 83 V -0.21 82 II
EC 8-V SP	8 56 -0.10 88 11 5 2 -0.22 82 1V 3 45 -0.20 82 V 3 34 -0.14 85 V 0 22 -0.11 82 V	8 8 -0.06 82 V 0 56 -0.15 85 V 0 34 -0.19 80 E IV 5 23 -0.10 86 V 7 23 -0.17 85 IV	0 32 -0.04 B1 PE III.V 5 0 -0.18 B2 V 3 32 -0.16 B3 P IV 1 38 -0.12 B8 V 7 49 -0.14 B5 III	0 12 -0.21 8 7 35 -0.13 8 3 58 -0.14 8 7 9 -0.11 8 0 50 -0.06 8	5 33 -0.15 B2 E V 9 38 -0.08 B8 P 7 41 -0.13 B5 E II 3 52 -0.01 B0.5 V	2 11 0.06 81 11 4 1 -0.11 86 11 4 22 -0.11 86 V 4 16 -0.07 87 11 3 51 -0.06 86 NN IV	4 1 -0.09 87 III 3 58 -0.08 88 II 1 48 0.12 81 B I 0 58 0.31 D PE V 4 40 -0.14 85 V	5 42 0.18 80.5 2 24 0.01 07 7 38 0.03 83 8 49 0.05 83	3 52 -0.12 88.5 V 3 51 B0 II 3 6 -0.22 B1 NE V 5 0 -0.20 B3 V 3 24 -0.21 B2 II
EC 8-V SP	56 -0.10 88 11 2 -0.22 82 1V 45 -0.20 82 V 34 -0.14 85 V 22 -0.11 82 V	8 -0.06 82 V 56 -0.15 85 V 34 -0.19 80 E IV 23 -0.10 86 V 23 -0.17 85 IV	32 -0.04 B1 PE III.V 0 -0.18 B2 V 32 -0.16 B3 P IV 38 -0.12 B8 V 49 -0.14 B5 III	12 -0.21 8 35 -0.13 8 58 -0.14 8 9 -0.11 8 50 -0.06 8	33 -0.15 B2 E V 38 -0.08 B8 P 6 -0.06 B5 E 41 -0.13 B5 II 52 -0.01 B0.5 V	11 0.06 81 11 1 -0.11 86 11 12 -0.01 86 V 16 -0.07 87 11 51 -0.06 86 NN IV	1 -0.09 87 11 58 -0.08 88 11 48 0.12 81 8 1 58 0.31 0 PE V	55 -0.18 80.5 42 0.01 07 24 -0.12 83 38 -0.03 83 49 -0.05 83	52 -0.12 88.5 V 51 B0 II 6 -0.22 B1 NE V 0 -0.20 83 V 24 -0.21 82 II
A(1973)DEC 8-V SP	7.0 28 56 -0.10 88 11 5.5 53 45 -0.22 82 1V 5.4 33 34 -0.14 85 V 0.6 50 22 -0.11 82 V	3.2 48 8 -0.06 82 V 8.3 40 56 -0.15 85 V 5.1 60 34 -0.19 80 E IV 7.2 -55 23 -0.10 86 V 6.7 -57 23 -0.17 85 IV	2.0 50 32 -0.04 B1 PE III.V 0.2 55 0 -0.18 B2 V 2.5 63 32 -0.16 B3 P IV 5.5 -51 38 -0.12 B8 V 6.0 -47 49 -0.14 B5 III	8.1 0 12 -0.21 B 2.8 -13 58 -0.14 B 8.4 27 9 -0.11 B 6.4 40 50 -0.06 B	7.6 65 33 -0.15 B2 E V 5.7 9 38 -0.08 B8 P 4.6 48 6 -0.06 B5 E 1.0 47 41 -0.13 B5 II 0.7 33 52 -0.01 B0.5 V	2.6 32 11 0.06 81 III 3.3 24 1 -0.11 86 III 4.2 24 16 -0.07 87 III 4.7 23 51 -0.06 86 NN IV	5.9 24 1 -0.09 87 II 7.6 23 58 -0.08 88 II 2.4 31 48 0.12 81 B I 3.7 30 58 0.31 0 PE V 2.6 -24 40 -0.14 85 V	6.0 39 55 -0.18 80.5 7.2 35 42 0.01 07 9.2 12 24 -0.12 83 6.7 47 38 -0.03 83 4.1 8 49 -0.05 83	6.9 -33 52 -0.12 88.5 V 7.9 -13 6 -0.22 81 NE V 0.0 -45 0 -0.20 83 V 5.0 -3 24 -0.21 82 II
EC 8-V SP	.0 28 56 -0.10 88 11 .8 15 2 -0.22 82 1V .5 53 45 -0.20 82 V .4 33 34 -0.14 85 V .6 50 22 -0.11 82 V	.2 48 8 -0.06 82 V .3 40 56 -0.15 85 V .1 60 34 -0.19 80 E IV .2 -55 23 -0.10 86 V .7 -57 23 -0.17 85 IV	.0 50 32 -0.04 B1 PE III.V .2 55 0 -0.18 B2 V .5 63 32 -0.16 B3 P IV .5 -51 38 -0.12 B8 V .0 -47 49 -0.14 B5 III	.1 0 12 -0.21 B .9 27 35 -0.13 B .4 27 9 -0.11 B .4 40 50 -0.06 B	.6 65 33 -0.15 B2 E V .7 9 38 -0.08 B8 P .6 48 6 -0.06 B5 E .0 47 41 -0.13 B5 II .7 33 52 -0.01 B0.5 V	.6 32 11 0.06 81 11 .3 24 1 -0.11 86 11 .6 24 22 -0.11 86 V .2 24 16 -0.07 87 11 .7 23 51 -0.06 86 NN IV	.9 24 1 -0.09 87 II .6 23 58 -0.08 88 II .4 31 48 0.12 81 B I .7 30 58 0.31 D PE V	.0 39 55 -0.18 80.5 .2 35 42 0.01 07 .2 12 24 -0.12 83 .7 47 38 -0.03 83 .1 8 49 -0.05 83	.9 -33 52 -0.12 88.5 V .9 53 51 60 -0.22 81 NE V .0 -45 0 -0.21 82 V .0 -3 24 -0.21 82 II
RA(1973)DEC 8-V SP	7.0 28 56 -0.10 88 11 11.8 15 2 -0.22 82 1V 35.5 53 45 -0.20 82 V 35.4 33 34 -0.14 85 V 40.6 50 22 -0.11 82 V	CAS 0 43.2 48 8 -0.06 82 V AND 0 48.3 40 56 -0.15 85 V CAS 0 55.1 60 34 -0.19 80 E IV PHE 1 7.2 -55 23 -0.10 86 V ERI 1 36.7 -57 23 -0.17 85 IV	PER 1 42.0 50 32 -0.04 B1 PE III.V PER 1 50.2 55 0 -0.18 B2 V CAS 1 52.5 63 32 -0.16 B3 P IV ERI 2 15.5 -51 38 -0.12 B8 V ERI 2 26.0 -47 49 -0.14 B5 III	38.1 0 12 -0.21 B 41.9 27 35 -0.13 B 42.8 -13 58 -0.14 B 48.4 27 9 -0.11 B 6.4 40 50 -0.06 B	17.6 65 33 -0.15 B2 E V 25.7 9 38 -0.08 B8 P 9 34.6 48 6 -0.06 B5 E 41.0 47 41 -0.13 B5 II 40.7 33 52 -0.01 B0.5 V	42.6 32 11 0.06 81 II 43.3 24 1 -0.11 86 II 43.6 24 22 -0.11 86 V 44.2 24 16 -0.07 87 II 44.7 23 51 -0.06 86 NN IV	45.9 24 1 -0.09 87 II 47.6 23 58 -0.08 88 II 52.4 31 48 0.12 81 8 I 53.7 30 58 0.31 0 PE V 52.6 -24 40 -0.14 85 V	PER 3 56.0 39 55 -0.18 80.5 PER 3 57.2 35 42 0.01 07 TAU 3 59.2 12 24 -0.12 83 PER 4 6.7 47 38 -0.03 83 TAU 4 14.1 8 49 -0.05 83	16-9 -33 52 -0-12 88-5 V 29-9 53 51 B0 II 27-9 -13 6 -0-22 B1 NE V 30-0 -45 0 -0-20 83 V 35-0 -3 24 -0-21 82 II
A(1973)DEC 8-V SP	0 0 7.0 28 56 -0.10 88 11 0 0 11.8 15 2 -0.22 82 1V 5 0 35.5 53 45 -0.20 82 V 0 0 35.4 33 34 -0.14 85 V 5 0 40.6 50 22 -0.11 82 V	IRON CAS 0 43.2 48 8 -0.06 82 V AND 0 48.3 40 56 -0.15 85 V AA CAS 0 55.1 60 34 -0.19 80 E IV A PHE 1 7.2 -55 23 -0.10 86 V A ERI 1 36.7 -57 23 -0.17 85 IV	ER 1 42.0 50 32 -0.04 B1 PE III.V ER 1 50.2 55 0 -0.18 B2 V AS 1 52.5 63 32 -0.16 B3 P IV RI 2 15.5 -51 38 -0.12 B8 V RI 2 26.0 -47 49 -0.14 B5 III	ET 2 38.1 0 12 -0.21 B RI 2 41.9 27 35 -0.13 B ET 2 42.8 -13 58 -0.14 B RI 2 48.4 27 9 -0.11 B ER 3 6.4 40 50 -0.06 B	3 17.6 65 33 -0.15 B2 E V ER 3 34.6 48 6 -0.06 B5 E ER 3 41.0 47 41 -0.13 B5 II ER 3 40.7 33 52 -0.01 B0.5 V	AU 3 43.6 32 11 0.06 81 II AU 3 43.3 24 1 -0.11 86 II AU 3 43.6 24 22 -0.11 86 V AU 3 44.2 24 16 -0.07 87 II AU 3 44.7 23 51 -0.06 86 NN IV	AU 3 45.9 24 1 -0.09 87 II AU 3 47.6 23 58 -0.08 B8 II ER 3 52.4 31 48 0.12 B1 B I ER 3 53.7 30 58 0.31 D PE RI 3 52.6 -24 40 -0.14 B5 V	ER 3 56.0 39 55 -0.18 80.5 AU 3 59.2 12 24 -0.12 83 ER 4 6.7 47 38 -0.03 83 AU 4 14.1 8 49 -0.05 83	41 ERI 4 16-9 -33 52 -0-12 88-5 V 1 CAH 4 29-9 53 51 B0 II 4 27-9 -13 6 -0-22 B1 NE V A CAE 4 30-0 -45 0 -0-20 B3 V ERI 4 35-0 -3 24 -0-21 B2 II
RA(1973)DEC 8-V SP	LPHA AND D 7.0 28 56 -0.10 88 II AMMA PEG 0 11.8 15 2 -0.22 82 IV ETA CAS 0 35.5 53 45 -0.20 82 V I AND 0 35.4 33 34 -0.14 85 V I CAS 0 40.6 50 22 -0.11 82 V	RON CAS 0 43.2 48 8 -0.06 82 V AND 0 48.3 40 56 -0.15 85 V A CAS 0 55.1 60 34 -0.19 80 E IV PHE 1 7.2 -55 23 -0.10 86 V A ERI 1 36.7 -57 23 -0.17 85 IV	HE PER 1 42.0 50 32 -0.04 B1 PE III.V 1 PER 1 50.2 55 0 -0.18 B2 V PSILON CAS 1 52.5 63 32 -0.16 B3 P IV HI ERI 2 15.5 -51 38 -0.12 B8 V APPA ERI 2 26.0 -47 49 -0.14 B5 III	ELTA CET 2 38.1 0 12 -0.21 B 35 ARI 2 41.9 27 35 -0.13 B 1 CET 2 42.8 -13 58 -0.14 B 41 ARI 2 48.4 27 9 -0.11 B ETA PER 3 6.4 40 50 -0.06 B	3 17.6 65 33 -0.15 B2 E V SI PER 3 34.6 48 6 -0.06 B5 E ELTA PER 3 41.0 47 41 -0.13 B5 II 40 PER 3 40.7 33 52 -0.01 B0.5 V	HICRON PER 3 42.6 32 11 0.06 81 III 17 TAU 3 43.3 24 1 -0.11 86 III 19 TAU 3 43.6 24 22 -0.11 86 V CO TAU 3 44.2 24 16 -0.07 87 III 23 TAU 3 44.7 23 51 -0.06 86 NN IV	TA TAU 3 45.9 24 1 -0.09 87 II 27 TAU 3 47.6 23 58 -0.08 B8 II ETA PER 3 52.4 31 48 0.12 B1 B I X PER 3 53.7 30 58 0.31 0 PE AU ERI 3 52.6 -24 40 -0.14 05 V	PSILON PER 3 56.0 39 55 -0.18 80.5 I PER 3 57.2 35 42 0.01 07 AMBDA TAU 3 59.2 12 24 -0.12 83 48 PER 4 6.7 47 38 -0.03 83 U TAU 4 14.1 8 49 -0.05 83	41 ERI 4 16.9 -33 52 -0.12 88.5 V 1 CAH 4 29.9 53 51 B0 II 4 27.9 -13 6 -0.22 B1 NE V A CAE 4 30.0 -45 0 -0.20 B3 V ERI 4 35.0 -3 24 -0.21 B2 II

60.0 0.07 000 0.00 0.13 0.03 0.12 0.12 0.00 0.03 0.07 0.01 0.09 45 16 42 55 16 20402 20000 -19 -15 -23 -24 -31 127 126 126 128 -23 -23 -23 -25 -17 -25 -20 -18 41111 92232 22023 93.00 2277 50500 27.58 440000 244 LONG 176 200 192 195 213 198 200 203 210 210 209 209 209 209 205 209 209 209 181 206 165 209 217 172 209 208 214 194 202 202 204 204 204 204 196 178 183 200 201 205 204 195 195 195 539.2 89.4 67.8 129.3 53.9 81.6 701.7 107.5 98.1 243.3 1052.9 243.3 135.4 90.0 107.6 294.8 187.0 62.2 212.4 5247.7 572.7 51.2 155.5 74.7 98.1 2062.3 292.6 69.4 81.2 94.0 283.0 59.0 656.2 124.0 463.7 56.4 102.7 4.08 2.63 2.63 4.63 4.63 7.93 22.08 23.08 23.08 23.08 23.08 23.08 0.67 2.88 2.60 4.78 3.73 34.88 34.98 35.198 55.58 0.38 0.96 4.12 4.43 4.19 1.05 4.10 4.10 0.97 1.93 4.28 4.58 8 8 4 8 8 6 6 6 8 8 5.63 4.70 5.03 7.00 7.00 3.60 0.10 9.50 5.70 7.70 1.60 1.60 4.80 5.70 1.65 2.90 5.70 5.10 5.10 4 10 **6** 6 . m 9.9 59•8 3•0 1.0 2.1 53.0 5.3 1:1 4.4 37.5 37.5 11.7 52.8 SEP 5.0 1:0 9.0 000000 5 뿝 ۵ ۵ ⋖ ۵ 09.5 888 85 80.5 82.4 81 82 82 80.5 85 81.5 09.5 80 929 80 87 87 87 87 -0.14 -0.19 -0.21 -0.26 -0.19 -0.17 -0.18 -0.12 -0.15 -0.17 -0.19 -0.20 -0.18 -0.20 -0.02 -0.11 -0.28 -0.13 -0.15 -0.21 -0.22 -0.19 -0.22 -0.24 -0.19 -0.09 -0.14 -0.17 -0.23 -0.23 -0.15 -0.22 **にこいがみ** 26 52 2 5 RA(1973)DEC 14 41 34 34 94549 2777 29.3 29.8 30.6 31.9 33.2 21.4 22.3 22.3 23.1 13.2 16.3 18.3 20.3 23.7 24.6 26.0 25.4 28.5 34.8 35.3 35.3 34.1 34.1 34.1 ERI AUR ERI LEP AUR 8888 6888 TAU ERI GRI GRI ORI ORI LEP LEP ORI TAU TAU GRI 081 081 081 28.28 OR I ORE OR I T AU 32 33 DELTA UPSILON 120 EPSILON Zeta 6AMA BETA 114 PS1 PS1 ETA LAMBDA MU AE BETA TAU LAMBDA VV PHI LAMBDA LAMBDA 42 THETA IOTA 125 ET A 1713 1735 1756 1763 1520 1520 1552 1557 1595 1617 1641 1679 1702 1790 1791 1810 1811 868 868 876 879 880 1770 1781 1783 1789 1839 1842 1852 1855 886 897 897 899 1903 1910 1914 1918

ULIRAVIOLET FLUX OF THE BRIGHTEST STARS

E(8-V) 0.00 0.000 0.15 0.06 0.08 0.08 0.03 0.07 40.0 0.05 0.06 0.03 40222 2440 20 11 13 36 36 25222 25.800 7 4 P W 5276 LAT 9 3 0 9 1 + + + -10 -19 -20 *125 - 2 - 2 - 111 - 27 -28 22887 33 33 33 33 26 th -1 * 0 13 m 332233 LONG 207 205 238 238 237 214 212 183 167 174 241 194 195 214 263 226 192 214 216 216 206 200 200 206 206 206 196 227 227 237 241 242 242 231 231 239 232 196 251 202 227 97.6 81.2 89.0 93.7 67.8 83.4 187.0 539.2 368.3 110.9 115.1 212.6 1726.7 1373.8 67.9 58.1 52.1 118.6 2961.6 57.3 81.6 51.2 66.0 54.7 296.3 195.7 58.8 2353.6 53.9 65.8 182.4 61.9 188.1 162.7 115.9 63.4 110.2 64.5 594.8 74.4 53.6 1766.7 125.4 2.56 2.56 1.25 1.29 00.446 04.46 01.10 4.83 2.06 4.28 3.65 1.42 4.18 4.75 2.26 2.27 3.52 4.58 3.96 1.93 4.23 3.63 4.65 3.65 3.65 3.65 3.65 2.40 4.48 4.07 1.22 3.14 4.600 4.600 4.6000 3.10 6.20 5.20 5.20 5.20 5.20 2.05 5.35 2.60 2.60 2.60 4446 5.10 4.80 4.30 1.50 4.400 6.300 8.400 8.400 w m **6** 6 m m 4 m 184.8 12.6 4.5 112.7 3.0 21.4 SEP 5.4 0.5 OMAG 3.7 6.4 6.5 2.8 Z Z >=>>> w a 88 88 992 • 5 81 A2 89.5 800.00 88 07 14 -0.20 -0.24 -0.22 -0.13 -0.16 -0.18 -0.16 -0.21 -0.23 -0.12 -0.16 -0.10 -0-18 -0.20 -0.07 0.03 -0.25 -0.11 -0.20 -0.24 -0.22 -0.07 -0.21 8-4 37 938 2000 51 24 64 22 0 29 201222 5374 30 44 08 RAI 1973 10EC -23 16 -43 -13 -34 -34 -35 -26 -27 -17 1224 37. 2007. 4007. 4004. 39.00 46.00 46.00 46.5 50.1 56.3 57.6 56.6 6.0 10.4 10.6 13.6 17.1 18.4 19.3 21.5 27.4 26.6 27.5 30.7 36.2 39.5 44.0 43.4 48.8 52.4 54.9 40.00 Z Y S ORI ORI TAU AUR AUR P.1C CAA GEN HON CAA CAA CAA CAA 7 AC COL 202 03.1 03.1 CHA 02.1 02.1 03.1 19 Omicron 10TA EPSILGN ALPHA 133 139 BETA THETA 15 ALPHA 10 Kappa 15 2 LAPBDA GAMMA NU X I KAPPA X 1 CAMMA DMEGA 2eta 2eta DELTA SIGMA BETA NU BETA ZETA 2106 2159 2199 2205 2212 2294 2343 2344 2356 2361 2387 2421 2451 2456 2491 25492 2538 2531 2596 2618 1931 1933 1934 1948 1949 1950 1952 1956 1993 2004 2031 2031 2084 2088 2222 2226 2226 2233 2282 2288 2648 2653 2688 2690 2702 9661

ULTRAVIOLET FLUX OF THE BRIGHTEST STARS

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£(8-V)	0.13 0.09 0.04 0.06	0.00 0.00 0.04	000	0.26 0.14 0.12 0.01	00000 40000 40000	0.03	0.01	0.01	0.00
LAT	+ 0 21 - 7 5 - 7 10 -11 7		+ + + + + + + + + + + + + + + + + + + +	- 0 13 -10 34 -10 11 - 5 56 -11 12	-10 26 -7 50 -12 19 -10 17 -16 55	- 4 42 - 7 24 - 7 42 - 18 33 - 0 51	+ 0 8 -11 55 - 6 30 - 5 17 - 6 48	+26 19 -10 51 - 6 40 - 4 30	1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
- PNO	224 43 238 58 239 24 248 31 237 50	30468 30468 30468	241 57 241 57 252 8 240 45 239 11	242 14 260 15 260 10 253 54 263 23	262 4 258 54 266 41 263 28 276 32	255 58 239 2 262 48 281 37 253 35	254 57 272 52 264 58 265 9 270 15	223 15 275 49 270 36 255 0	272 5 273 54 266 15 277 39 276 42
FLUX	55.7 67.5 128.7 81.6	- m - m - m - m	4884.9	133.7 93.6 335.9 97.6 148.5	146.0 51.2 373.0 148.5 61.6	1738.3 66.0 125.4 62.1 51.2	51.2 83.6 148.4 51.5 186.0	117.4 195.6 53.2 310.3	92.2 141.8 160.8 60.4 58.8
'n	3.90 3.182 3.98 4.98	401-40	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	84588 84594 84598 84598	9999	3.56	44.12	82 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2.10 3.38 3.75 3.26 3.97
>	64.00.4 00.00.00.00.00	44000	. 4 4 W W	4.00 0.00 0.00 0.00 0.00 0.00	4 8 4 4 4 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2.20 4.40 4.20 4.30	24.80 00.40 00.40 00.40 00.40	4.40 4.30 5.10	11.40 7.40 8.00 8.00 8.00
SEP	0.1	84.45	10.0 3	27.7	9.8 3	42.5	7.3 0.8 4.4 3	16.9	3.5 3 29.0 40.6
DMAG	0.0	3.7	0.0	8 %	7.5 5.3	9.2 9.5 5.5	7.8	8.1 0.6	4.00
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רחש			. >1	, , , , , , , , , , , , , , , , , , ,	. 2 2	, 111	× × × × × × × × × × × × × × × × × × ×	, iii	>
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	w>	25.00 co	-	>		> 		>+++>	>>
E CUM	00007 M m	25 A F I I I I I I I I I I I I I I I I I I	Z Z	0 PE V 1 V 0.5 III 2 V	2	r z z z	87 H 28	N	2 NE NE S
B-V SP LUM	0.18 80 0.12 83 PE 1 0.14 83 E 1 0.18 82 V	24 54 -0.15 09 III 36 41 -0.13 83 E V 29 14 -0.07 85 A I 8 20 -0.10 87 V 23 1 B0 PE IV	0.20 B3 N 0.20 B3 N 0.20 B1	0.05 80 PE V 0.14 81 V 0.19 80.5 III 0.20 83 V 0.23 82 III	0.15 81 8 1 0.18 83 0.19 82 1 0.17 82 N	0.28 05 F V 0.16 85 N V 0.23 83 N I 0.12 85 N I 0.12 83 N F	0.20 83 V 81 V 0.16 81 V 0.14 82 I	0.20 83 V 0.12 81 I 0.18 64 I 0.19 82 I	0.04 A0 V 0.18 B2 NE V 0.21 B0 I 0.10 BB I
MÛJ dS V-	13.2 -10 15 -0.18 80 13.2 -26 19 -0.12 83 PE 1 13.7 -26 49 -0.14 B3 E 1 15.9 -36 33 -0.18 B2 V 17.6 -24 31 -0.15 07 F	17.6 -24 54 -0.15 09 III 17.3 -36 41 -0.13 83 E V 23.0 -29 14 -0.07 85 A I 25.7 8 20 -0.10 87 V 25.8 -23 1 80 PE IV	37.7 -19.56 B5 N 37.7 -26.44 B5 N 38.5 -38.15 -0.20 B3 N 43.4 -24.36 -0.20 B1 46.1 -22.26 -0.20 B1	47.0 -25 51 -0.05 80 PE V 46.7 -46 32 -0.14 81 V 48.4 -46 17 -0.19 80.5 IIII 51.7 -38 47 -0.20 83 V 52.3 -49 32 -0.23 82 IIII	52.5 -48 2 -0.15 81 8 1 56.4 -44 1 -0.18 83 56.1 -52 54 -0.19 82 57.5 -49 9 -0.17 82 N 60.0 -63 29 -0.18 83	2.6 -39 55 -0.28 05 F 7.8 -19 10 -0.16 85 V 8.7 -47 16 -0.23 83 N 7.9 -68 32 -0.12 85 I 12.5 -35 49 -0.12 83 NE	20.3 -36 23 -0.20 83 20.6 -57 52 81 V 21.7 -48 23 -0.16 81 V 28.2 -47 50 -0.14 82 1 39.5 -52 49 -0.18 83 I	41.8 3 28 -0.20 B3 V 40.0 -59 39 -0.12 B1 I 41.6 -53 1 -0.18 B4 I 42.5 -33 6 -0.19 B2 I 42.8 -49 44 -0.21 B0 N V	44.0 -54.37 0.04 A0 46.0 -56.40 -0.18 B2 NE V 49.6 -46.25 -0.21 B0 54.4 -60.32 -0.10 BB 56.3 -59 7 -0.17 B3
RAI19731DEC B-V SP LUM	7 13.2 -10 15 -0.18 80 17 13.2 -26 18 -0.12 83 PE 1 7 13.7 -26 43 -0.14 B3 E 1 7 15.9 -36 33 -0.18 B2 V 7 17.6 -24 31 -0.15 07 F	A 7 17.6 -24 54 -0.15 09 III A 7 23.0 -29 14 -0.07 85 A I I 7 25.7 8 20 -0.10 87 V 7 25.8 -23 I 80 PE IV	7.7 -26 44 B5 N 8.5 -38 15 -0.20 B3 N 3.4 -24 36 -0.20 B1 6.1 -22 26 -0.20 B1	7.0 -25 51 -0.05 80 PE V 6.7 -46 32 -0.14 81 V 8.4 -46 17 -0.19 80.5 IIII 1.7 -38 47 -0.20 83 V 2.3 -49 32 -0.23 82 IIII	7 52.5 -48 2 -0.15 61 8 1 7 56.4 -44 1 -0.18 83 7 56.1 -52 54 -0.19 82 7 57.5 -49 9 -0.17 82 N 7 60.0 -63 29 -0.18 83	8 2.6 -39 55 -0.28 05 F 8 7.8 -19 10 -0.16 85 V 8 8.7 -47 16 -0.23 83 N 8 7.9 -68 32 -0.12 85 I 8 12.5 -35 49 -0.12 83 NE	8 20.3 -36 23 -0.20 83 8 20.6 -57 52 81 V 8 21.7 -48 23 -0.16 81 V 8 28.2 -47 50 -0.14 82 I EL 8 39.5 -52 49 -0.18 83 I	8 41.8 3 28 -0.20 83 V 8 40.0 -59 39 -0.12 81 I 8 41.6 -53 1 -0.18 64 I 8 42.5 -33 6 -0.19 82 I 8 42.8 -49 44 -0.21 80 N V	EL 8 44.0 -54 37 0.04 A0
A119731DEC 8-V SP LUM	7 13.2 -10 15 -0.18 80 I 7 13.2 -26 18 -0.12 83 PE I 7 13.7 -26 43 -0.14 B3 E I 7 15.9 -36 33 -0.18 B2 V 7 17.6 -24 31 -0.15 07 F	7 17.6 -24 54 -0.15 09 III 7 17.3 -36 41 -0.13 83 E V 7 23.0 -29 14 -0.07 85 A I 7 25.7 8 20 -0.10 87 V 7 25.8 -23 1 80 PE IV	37.7 -19.56 B5 N 37.7 -26.44 B5 N 38.5 -38.15 -0.20 B3 N 43.4 -24.36 -0.20 B1 46.1 -22.26 -0.20 B1	47.0 -25 51 -0.05 80 PE V 46.7 -46 32 -0.14 81 V 48.4 -46 17 -0.19 80.5 IIII 51.7 -38 47 -0.20 83 V 52.3 -49 32 -0.23 82 IIII	52.5 -48 2 -0.15 81 8 1 56.4 -44 1 -0.18 83 56.1 -52 54 -0.19 82 57.5 -49 9 -0.17 82 N 60.0 -63 29 -0.18 83	2.6 -39 55 -0.28 05 F 7.8 -19 10 -0.16 85 V 8.7 -47 16 -0.23 83 N 7.9 -68 32 -0.12 85 I 12.5 -35 49 -0.12 83 NE	8 20.3 -36 23 -0.20 83 8 20.6 -57 52 81 V 8 21.7 -48 23 -0.16 81 V 8 28.2 -47 50 -0.14 82 I 8 39.5 -52 49 -0.18 83 I	8 41.8 3 28 -0.20 83 V 8 40.0 -59 39 -0.12 81 I 8 41.6 -53 1 -0.18 64 I 8 42.5 -33 6 -0.19 82 I 8 42.8 -49 44 -0.21 80 N V	8 44.0 -54 37 0.04 A0

ULTRAVIOLET FLUX OF THE BRIGHTEST STARS

E (8-V) 0.13 0.06 0.08 0.00 0.00 0000 90.0 0.03 40.0 20.0 0.12 24400 22228 LAI 100+ 112 1 + + + + 4 + + + 70+ +54 + 6 +61 14+ 20 13 8 8 28 28 13 39 16428 53 20 20 20 20 20 2000 58 4 T F 5442 2256 LONG 286 268 277 285 285 275 274 279 226 279 290 282 234 287 289 286 294 296 140 286 295 295 296 296 296 305 302 303 303 303 289 289 297 149 289 300 300 300 299 295 301 301 301 1426.8 53.6 97.6 54.1 114.8 64.8 128.7 5275.0 950.9 246.5 514.9 70.7 6112.1 54.9 134.8 98.1 51.5 390.6 147.8 981.1 56.2 113.0 755.0 192.4 142.3 51.2 53.9 591.2 106.1 816.1 114.8 75.5 489.3 92.5 53.2 74.8 70.0 74.7 3.46 3.12 0.94 2.78 1.28 4.02 2.98 6.66 4.03 2.72 3.87 2.45 4.13 3.42 2.40 2.40 3.57 3.55 3.55 3.66 1.83 3.15 1.48 2.57 2.96 3.16 1.67 2.10 3.77 3.78 4.48 2.28 2.97 1.17 1.45 5.70 3.40 1.60 2.40 3.50 6.40 8.40 8.40 6.10 2.10 2.40 5.40 4 2 6 8 5 6 8 8 8 8 2.93 3.83 2.70 2.10 3.00 4.60 4.60 4.60 60 60 60 37.2 33.8 SEP 0.6 16.6 368.0 29.7 1.6 0.00 7.8 6.5 000 8•₹ 00 σ ø 5 2: OPE 뿡 കല z 80 89 83 81.5 62.5 83.5 80.5 83.5 10.22 -0.08 -0.13 -0.13 -0.23 -0.15 -0.20 -0.01 -0.19 -0.16 -0.11 -0.24 -0.24 -0.13 -0.24 -0.20 -0.20 -0.09 -0.11 -0.20 -0.04 -0.13 -0.18 25 28 28 29 36 2025 42224 90823 28339 23442 80200 RA(1973)DEC 146 146 162 163 163 448 169 159 169 169 150 150 170 17 -63 -62 -62 -62 -16 -71 -69 -68 -48 -54 -51 -51 -51 -51 547 162 193 193 193 1.55 1.55 1.55 1.55 1.55 5.4 10.6 10.3 12.9 21.3 33.2 45.9 7.9 13.1 45.0 45.9 45.5 19.2 6.7 10.2 13.7 16.7 17.0 25.1 25.1 44. 44. 53.0 53.0 53.0 •••• 66622 === 22222 22222 22222 22222 CHA CEN UMA S C C C S CAR CAR VEL CAR £ 60 CRV DRA MUS CEN 255 3 NAME BETA LAMBDA MU LAMBDA THETA DELTA BETA Pi OELTA RHO DELTA GAMMA PHI ALPHA SETA ZETA ALPHA ALPHA SIGMA UELTA GAMMA KAPPA ALPHA GAMMA CAMMA DMEGA BETA RETA SH. 3663 1819 3982 4133 4234 4295 4390 4467 4537 4554 4590 4638 4638 4656 4656 4674 4679 4730 4731 4743 3940 3642 3658 3659 4757 4798 4844 4853 4787

ULTRAVIOLET FLUX OF THE BRIGHTEST STARS

£(8-V)	0.04	0.04	0.01 0.02 0.03 0.05	0.02	0.03	00 00 00 00 00 00 00 00 00 00 00 00 00	0.28	0.03	0.19 0.16 0.04 0.09
LAT	+61 10 +78 46 +12 54 + 1 40 +10 24	+50 52 + 8 44 +19 54 +65 19 +19 7	+28 12 +14 12 +19 5 +16 27 + 1 16	+19 33 +14 9 +20 2 +14 31 + 9 15	+16 41 + 9 52 +11 26 +20 6 +14 7	+13 55 +14 46 + 9 56 +11 8	+39 15 +13 50 +10 20 +16 45	+11 54 +54 43 + 8 46 +53 47 +20 27	+21 43 +21 37 +18 17 +28 39 +20.14
LONG	122 12 118 19 305 29 306 42 307 43	316 6 310 11 314 25 100 43 314 14	317 17 314 4 315 58 315 17	317 43 318 28 321 34 319 55	322 46 320 8 321 36 325 54 324 54	326 15 326 52 325 19 326 48	319 41 352 1 331 19 329 13	333 11 49 42 331 1 41 53	346 62 346 52 344 38 356 23 347 12
FLUX	133.7 98.6 187.0 56.7 76.2	7789.8 2145.5 448.5 1022.2 409.0	50.1 1027.4 296.3 283.0 9806.7	107.0 213.6 93.2 74.1 148.5	1868.6 94.0 1126.5 122.9 59.1	894.8 564.6 50.1 128.7 58.8	78.4 182.4 514.9 234.2	779.4 57.3 60.2 84.4 283.0	64.8 74.4 270.2 72.1 980.6
ş	1.70 2.47 3.08 4.73	0.00 0.03 20.03 20.03 20.03	22.23 22.53 22.53 22.53 22.53	8.00 8.00 8.00 8.00 8.00	94448 64448	11.03 10.03	4.60 2.06 1.98 2.47 3.68	1.53 3.66 2.20 2.20	4.23 4.08 2.68 3.74
>	2.40 4.20 4.50 6.10	0.90 2.30 3.40 3.40	4.2.60	4 W 4 4 4 W W 4 W 4 O O O O U	24.24.4 00.44.00 00.00.00	2.63 3.13 4.70 4.03	8 .00 2 .60 3 .20 4 .30	2.44 2.50 3.50 60	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
SEP	19.9 26.0 60.5	37.6	9.4.	,	5.6 27.6 0.1	646 848	50.0	3.1	2.9 38.4 51.2
DMAG	5.1	6.6	1.6		10.6	444	6 -	2.1	000
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		>>=>>	# > > n	83 83 83 83 83 83	> 1 2 1	82 IV 88 83 V 00 883 V 111	09 88 88 89 89 89 89 89 89 89 89	> =>>	>>>, >
P LUM	25.50 P V V	1 V 1 1 2 2 1 V 3 4 V 2 4 V 4 V 4 V 4 V 4 V 4 V 4 V 4 V 4	2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1.5 NE V Q 2 2 1 1 1 1 0 0	7	>> >> >> >> >> >> >> >> >> >> >> >> >>	2 NN V 5 NN V 0 V V	2.5 N K Z 2.5 N V X X X X X X X X X X X X X X X X X X
73)DEC 8-V SP LUM	0.03 AO PV 0.11 89.5 PV 0.20 82 0.14 85	0.24 81 V 1 0.23 82 IV V 1 0.19 83 V 0	0.23 82 III 0.22 82 IV 0.22 82 IV 0.23 81 II	0.20 0.19 0.19 0.19 0.19	0.21 81.5 NE V Q 0.15 85 V 0.21 82 II 0.17 83 V	0.22 82 IV 0.22 82 V 0.18 83 V 0.17 83 III	0.06 09 V 0.11 B8 V 0.22 B2 IV 0.17 B3 IV	0.21 82 N V 0.13 87 NN 0.18 85 IV 0.02 A0 V 0.17 82.5 V	0.05 82.5 N V 0.08 82.5 N V 0.20 82 V 1 0.09 8 P V
8-V SP LUM	52.8 56 5 -0.03 AO PV 54.8 38 27 -0.11 89.5 PV 5.3 -49 45 -0.20 82 20.9 -60 50 -0.14 85 20.6 -52 2 81	23.8 -11 0 -0.24 81 V 38.2 -53 19 -0.24 81 V 47.9 -41 32 -0.23 82 IV 46.5 49 27 -0.19 83 V 48.0 -42 20 -0.21 82 PNE V	50.3 -32 51 05 P III 53.9 -47 9 -0.23 82 IV 56.6 -41 58 -0.22 82 IV 57.0 -44 40 -0.21 82 V 1.9 -60 14 -0.23 81 II	4.4 -41 3 -0.20 8 17.7 -45 56 -0.19 8 21.4 -39 22 -0.19 8 24.4 -45 5 -0.16 8 30.8 -50 20 -0.19 8	33.8 -42 1 -0.21 81.5 NE V Q 36.1 -49 17 -0.15 85 V 40.1 -47 16 -0.21 82 II 40.3 -37 40 -0.17 83 V 49.9 -43 28 -0.16 86 III Q	56.8 -43 1 -0.22 82 IV 57.4 -41 59 -0.22 82 V 3.3 -46 56 85 IV 7.0 -45 10 -0.18 83 V 11.0 -44 23 -0.17 83 III	14.8 -60 51 -0.06 09 V 15.5 -9 17 -0.11 88 V 19.6 -40 33 -0.22 82 IV 20.8 -44 36 -0.17 83 IV 21.4 -36 46 -0.15 85 V	33.3 -41 4 -0.21 82 N V 31.8 31 27 -0.13 87 NN 34.0 -44 51 -0.18 85 IV 33.5 26 48 -0.02 A0 V 37.0 -29 41 -0.17 82.5 V	49.4 -25 40 -0.05 82.5 N V 52.0 -25 15 -0.08 82.5 N V 55.2 -29 8 -0.20 82 V 1 56.7 -14 11 -0.09 81 P V 57.2 -26 2 -0.19 81 V
A(1973)DEC 8-V SP LUM	12 52.8 56 5 -0.03 AO PV 12 54.8 38 27 -0.11 89.5 PV 13 5.3 -49 45 -0.20 82 13 20.9 -60 50 -0.14 85 13 20.6 -52 2 81	13 23.8 -11 0 -0.24 81 V 13 38.2 -53 19 -0.24 81 V 13 47.9 -41 32 -0.23 82 IV 13 46.5 49 27 -0.19 83 V 13 48.0 -42 20 -0.21 82 PNE V	13 50.3 -32 51 05 P III 13 53.9 -47 9 -0.23 82 IV 13 56.6 -41 58 -0.22 82 IV 13 57.0 -44 40 -0.21 82 V 14 1.9 -60 14 -0.23 81 II	14 4.4 -41 3 -0.20 B 14 17.7 -45 56 -0.19 B 14 21.4 -39 22 -0.19 B 14 24.4 -45 5 -0.16 B 14 30.8 -50 20 -0.19 B	14 33.8 -42 1 -0.21 81.5 NE V Q 14 36.1 -49 17 -0.15 85 V V V V V V V V V V V V V V V V V V	14 56.8 -43 1 -0.22 82 IV 14 57.4 -41 59 -0.22 82 V 15 3.3 -46 56 85 IV 15 7.0 -45 10 -0.18 83 V 15 11.0 -44 23 -0.17 83 III	15 14.8 -60 51 -0.06 09 V 15 15.5 -9 17 -0.11 B8 V 15 19.6 -40 33 -0.22 B2 IV 15 20.8 -44 36 -0.17 B3 IV 15 21.4 -36 46 -0.15 B5 V	15 33.3 -41 4 -0.21 82 N V 15 31.8 31 27 -0.13 87 NN 15 34.0 -44 51 -0.18 85 IV 15 33.5 26 48 -0.02 A0 V 15 37.0 -29 41 -0.17 82.5 V	15 49.4 -25 40 -0.05 82.5 N V 15 52.0 -25 15 -0.08 82.5 N V 15 55.2 -29 8 -0.20 82 V 15 56.7 -14 11 -0.09 8 P 15 57.2 -26 2 -0.19 81 V
A(1973)DEC 8-V SP LUM	UMA 12 52.8 56 5 -0.03 AO PV CVN 12 54.8 38 27 -0.11 89.5 PV CEN 13 5.3 -49 45 -0.20 82 13 20.9 -60 50 -0.14 85 13 20.6 -52 2 81	LON CEN 13 38.2 -53 19 -0.24 81 V I CEN 13 38.2 -53 19 -0.24 81 V I UMA 13 47.9 -41 32 -0.23 82 IV UMA 13 46.5 49 27 -0.19 83 V CEN 13 48.0 -42 20 -0.21 82 PNE V Q	3 CEN 13 50.3 -32 51 05 P III CEN 13 53.9 -47 9 -0.23 82 IV CEN 13 56.6 -41 58 -0.22 82 IV LON CEN 13 57.0 -44 40 -0.21 82 V CEN 14 1.9 -60 14 -0.23 81 II	CEN 14 4.4 -41 3 -0.20 B LUP 14 17.7 -45 56 -0.19 B 14 21.4 -39 22 -0.19 B LUP 14 24.4 -45 5 -0.16 B A LUP 14 30.8 -50 20 -0.19 B	CEN 14 33.8 -42 1 -0.21 81.5 NE V Q LUP 14 36.1 -49 17 -0.15 85 V V V LUP 14 40.1 -47 16 -0.21 82 II ON LUP 14 49.9 -43 28 -0.16 86 III Q	LUP 14 56.8 -43 1 -0.22 82 IV CEN 14 57.4 -41 59 -0.22 82 V LUP 15 3.3 -46 56 B5 IV A LUP 15 7.0 -45 10 -0.18 B3 V 15 11.0 -44 23 -0.17 B3 III	A CIR 15 14.8 -60 51 -0.06 09 V LIB 15 15.5 -9 17 -0.11 B8 V LUP 15 19.6 -40 33 -0.22 B2 IV CN LUP 15 20.8 -44 36 -0.17 B3 IV LUP 15 21.4 -36 46 -0.15 B5 V	1 CRB 15 33.3 -41 4 -0.21 82 N V CRB 15 31.8 31 27 -0.13 87 NN 15 34.0 -44 51 -0.18 85 IV CRB 15 33.5 26 48 -0.02 A0 V LIB 15 37.0 -29 41 -0.17 82.5 V	5 49.4 -25 40 -0.05 B2.5 N V 5 52.0 -25 15 -0.08 B2.5 N V 5 55.2 -29 8 -0.20 B2 V 1 5 56.7 -14 11 -0.09 8 P V
RA(1973)DEC B-V SP LUM	12 52.8 56 5 -0.03 AO PV 12 54.8 38 27 -0.11 89.5 PV 13 5.3 -49 45 -0.20 82 13 20.9 -60 50 -0.14 85 13 20.6 -52 2 81	ON CEN 13 38.2 -53 19 -0.24 81 V 1 CEN 13 38.2 -53 19 -0.24 81 V 1 CEN 13 47.9 -41 32 -0.23 82 IV UMA 13 46.5 49 27 -0.19 83 V CEN 13 48.0 -42 20 -0.21 82 PNE V Q	3 CEN 13 50.3 -32 51 05 P III CEN 13 53.9 -47 9 -0.23 B2 IV CEN 13 55.6 -41 58 -0.22 B2 IV ON CEN 13 57.0 -44 40 -0.21 B2 V CEN 14 1.9 -60 14 -0.23 B1 II	CEN 14 4.4 -41 3 -0.20 B LUP 14 17.7 -45 56 -0.19 B 14 21.4 -39 22 -0.19 B LUP 14 24.4 -45 5 -0.16 B LUP 14 30.8 -50 20 -0.19 B	CEN 14 33.8 -42 1 -0.21 81.5 NE V Q LUP 14 36.1 -49 17 -0.15 85 V V V LUP 14 40.1 -47 16 -0.21 82 II ON LUP 14 49.9 -43 28 -0.16 86 III Q	LUP 14 56.8 -43 1 -0.22 82 IV CEN 14 57.4 -41 59 -0.22 82 V LUP 15 3.3 -46 56 B5 IV A LUP 15 7.0 -45 10 -0.18 B3 V 15 11.0 -44 23 -0.17 B3 III	CIR 15 14.8 -60 51 -0.06 09 V LIB 15 15.5 -9 17 -0.11 B8 V LUP 15 19.6 -40 33 -0.22 B2 IV LUP 15 20.8 -44 36 -0.17 B3 IV LUP 15 21.4 -36 46 -0.15 B5 V	CRB 15 33.3 -41 4 -0.21 82 N V CRB 15 31.8 31 27 -0.13 87 NN 15 34.0 -44 51 -0.18 85 IV CRB 15 33.5 26 48 -0.02 A0 V LIB 15 37.0 -29 41 -0.17 82.5 V	1 SCO 15 49.4 -25 40 -0.05 B2.5 N V SCO 15 52.0 -25 15 -0.08 B2.5 N V SCO 15 55.2 -29 B -0.20 B2 V 1 SCO 15 56.7 -14 11 -0.09 B P SCO 15 57.2 -26 2 -0.19 B1 V

ULIRAVICLET FLUX OF THE BRIGHTEST STARS

ULTRAVIOLET FLUX OF THE BRIGHTEST STARS

E (B-V)	0.01 0.20 0.24 0.05	204 4	0.00	0.07	04 0 0	0.03	0.03	0.13 0.08 0.03
LAT	25 3 3 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 m 10 4	, o w w w .	######################################	4H4H8 NO4	. — w	6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	23 52 14 47 12 25 12 49 5 30
ONG	46 +1 6 +2 11 +2 50 +1 45 +2		356 + 32 + 13	24 + 3 53 - 1	44 44 44 64 64 64 64 64 64 64 64 64 64 6	PP I PP I	40 -1 3 -1 26 +1 59 -1	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
נפ	5 338 5 340 5 340 6 353	መመመ መ m	7 8 8 7 8 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	44.6 44.6 44.6 44.6 44.6 44.6 44.6 44.6	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	, w w w w w w w w w w w w w w w w w w w	0 348 6 21 1 67 7 359	333 2 63 7 63 7 90
FLUX	448.1 1219.4 769.4 178.5	4 @ W W W	162.8 70.3 1466.2	894.4 3904.4 378.4 5.83.6 5.23.6	8560 8560 8560 8560 8560 8560 8560	2 6 2 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6	204-0 52-6 638-1 93-1	246. 74. 1485.0 68.4
3	2.13 2.05 3.13 4.13	0,4,4,6		1.78 2.28 2.36 4.07 4.67	2.03 2.94 2.96 2.96 3.90 3.90	00440	2.62 0.00 3.83 2.56	3.18 0.83 2.87 3.07
>	8 2 2 4 6 0 6 4 6 0 6 6 6 6 6 6 6 6 6 6 6 6 6	0,0000	4 W C C C C C C C C C C C C C C C C C C	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2000 0000 0000 00000 00000 00000 00000 0000	. m o o	600.00 000.00 000.00	2000 2000 2000 2000 2000
SEP	15.5	1.1 4 20.7 6.7 23.9		346.0 346.0 4.7	17.9 47.4 55.6 6.1	8.2 3 23.4 32.5	12.4 57.1 5 9.6	63.1 46.6 6 13.8
DMAG	e 4	7.0 10.7 2.7		00 W	4 9 5	6.5 11.3	w w	9.0
LUM	>>>>	> II > >	-2->>	>1 111 111 >	>II >	>> ==> ==	11 2 2 1	>>>=
MOJ	•		2>		>II > 1 >	:>> 1	11 > > 11	ON 1111
SP		22.58 N V V V V V V V V V V V V V V V V V V	•		>-> > -	w .	83 1111 82 V A0 V 82 V 1111	81 E V 67 V 82 V 89 IIII
8-V SP LUM	2002 2003 8	0.04 82 IV 0.16 82.5 N V 0.14 81 II 0.15 85 IV 0.07 83 Q V	.17 82 .25 80 .02 09.	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.21 82 1 0.13 81 1 0.10 88 V 0.22 83 8 I 0.18 82.5 E V 0.21 81 V	w .	8 2 0 2 B	
SC 8-V SP	0.23 62 V · O.11 80.5 V V · O.19 82 V V V V V V V V V V V V V V V V V V	19 23 0.04 82 IV 27 51 -0.16 82.5 N V 25 31 0.14 81 II 46 22 -0.15 85 IV 47 30 -0.07 83 Q V 25 3 -0.11 82 V	4 38 -0.17 82 4 47 -0.25 80 0 30 0.02 09.	0.21 81.5 V 0.22 62 II 0.13 86 II 0.15 83 II	0.21 82 1 0.13 81 1 0.10 88 V 0.22 83 8 I 0.18 82.5 E V 0.21 81 V	46 1 -0.18 B3 4 21 -0.04 B2 22 46 B0 50 5 -0.07 B0.5 42 18 B0 34 23 -0.02 B9	0.18 83 1 82 v 0.00 A0 v 0.17 82 v	0.15 81 0.01 07 0.21 82 0.04 89
RA(1973)DEC 8-V SP	38 19 -0.23 62 V 7 22 32 -0.11 60 V 19 43 -0.07 80.5 V 20 35 -0.04 81 V	0.4 -19 23 0.04 82 IV 9.6 -25 31 0.14 81 II 8.9 46 22 -0.15 85 IV 5.2 -47 30 -0.07 83 Q V 8.6 -25 3 -0.11 82 V	9.6 -34 38 -0.17 82 4.5 -42 47 09 4.2 -28 9 -0.25 80 5.7 -10 30 0.02 09.	38 0 -0.21 81.5 V 37 58 -0.22 62 I 65 44 -0.13 86 I 33 7 -0.15 83 I 62 50 82 V	24 58 -0.21 82 1 56 21 -0.13 81 1 60 39 -0.10 88 W 37 16 -0.22 83 8 I 49 51 -0.18 82.5 E V 37 4 -0.21 81 V 32 33 077 1	8.9 4 21 -0.16 B3 8.9 4 21 -0.04 B2 0.3 -22 46 B0 4.5 -50 5 -0.07 B0.5 7.6 20 48 -0.15 82 6.7 -42 18 B0	45 58 -0.18 83 1 10 49 82 V 38 45 -0.00 A0 V 35 39 -0.17 82 V 27 1 -0.10 88 1	62 12 -0.15 81 33 20 -0.01 07 26 19 -0.21 82 32 38 -0.04 89 -4 55 -0.10 89
A(1973)DEC 8-V SP	15 58.3 -38 19 -0.23 62 V 15 58.7 -22 32 -0.11 80 V 16 3.9 -19 43 -0.07 80.5 V 16 4.8 -36 43 -0.19 82 N V 16 5.2 -20 35 -0.04 81 V	16 10.4 -19 23 0.04 82 IV 16 10.7 -27 51 -0.16 82.5 N V 16 19.6 -25 31 0.14 81 II 16 18.9 46 22 -0.15 85 IV 16 25.2 -47 30 -0.07 83 Q V	16 29.6 -34 38 -0.17 82 16 34.5 -42 47 09 16 34.2 -28 9 -0.25 80 16 35.7 -10 30 0.02 09.	16 50.0 -38 0 -0.21 81.5 V 16 50.5 -37 58 -0.22 62 I 17 8.7 65 44 -0.13 86 I 17 16.3 33 7 -0.15 83 I 17 21.5 -62 50 82 V	17 20.3 -24 58 -0.21 B2 17 23.1 -56 21 -0.13 B1 17 28.7 -60 39 -0.10 B8 17 28.9 -37 16 -0.22 B3 B I 17 29.8 -49 51 -0.18 B2.5 E V 17 31.8 -37 4 -0.21 B1 V 17 32.9 -32 33 0.07 1	17 38.7 46 1 -0.18 B3 17 58.9 4 21 -0.04 B2 18 0.3 -22 46 B0.5 18 4.5 -50 5 -0.07 B0.5 18 16.7 -42 18 B0 18 22.4 -34 23 -0.02 B9	18 25.0 -45 58 -0.18 83 1 18 29.9 -10 49 82 V 18 36.0 38 45 -0.00 A0 V 18 42.5 -35 39 -0.17 82 V 16 44.0 -27 1 -0.10 88 I	18 49.7 -62 12 -0.15 81 18 49.1 33 20 -0.01 07 18 53.6 -26 19 -0.21 82 18 57.9 32 38 -0.04 89 19 4.8 -4 55 -0.10 69
RA(1973)DEC B-V SP	5 58.3 -38 19 -0.23 62 V 5 58.7 -22 32 -0.11 60 V 6 3.9 -19 43 -0.07 80.5 V 6 4.8 -36 43 -0.19 82 N V 6 5.2 -20 35 -0.04 81 V	SCO 16 10.4 -19 23 0.04 82 IV SCO 16 10.7 -27 51 -0.16 82.5 N V SCO 16 19.6 -25 31 0.14 81 II HER 16 18.9 46 22 -0.15 85 IV NOR 16 25.2 -47 30 -0.07 83 Q V	16 29.6 -34 38 -0.17 82 16 34.5 -42 47 09 00 16 34.2 -28 9 -0.25 80 PH 16 35.7 -10 30 0.02 09.	6 50.0 -38 0 -0.21 81.5 V 6 50.5 -37 58 -0.22 62 I 7 8.7 65 44 -0.13 86 I 7 16.3 33 7 -0.15 83 I 7 21.5 -62 50 82 V	OPH 17 20.3 -24 58 -0.21 82 1 1 ARA 17 23.1 -56 21 -0.13 81 1 1 ARA 17 28.7 -60 39 -0.10 88 V SCO 17 28.9 -37 16 -0.22 83 8 I ARA 17 29.8 -49 51 -0.18 82.5 E V SCO 17 31.8 -37 4 -0.21 81 V SCO 17 20.6 -39 3 -0.22 82	HER IT 38.7 46 I -0.18 B3 OPH IT 58.9 4 21 -0.04 B2 18 0.3 -22 46 B0 ARA 18 4.5 -50 5 -0.07 B0.5 HER 18 7.6 20 48 -0.15 82 SGR 18 22.4 -34 23 -0.02 B9	8 25.0 -45 58 -0.18 B3 I 8 29.9 -10 49 B2 V 8 36.0 38 45 -0.00 A0 V 8 42.5 -35 39 -0.17 B2 V 8 44.0 -27 I -0.10 B8 I	8 49.7 -62 12 -0.15 81 8 49.1 33 20 -0.01 07 8 53.6 -26 19 -0.21 82 8 57.9 32 38 -0.04 89 9 4.8 -4 55 -0.10 69
RA(1973)DEC 8-V SP	UP 15 58.3 -38 19 -0.23 B2 V CO 15 58.7 -22 32 -0.11 B0 V CO 16 3.9 -19 43 -0.07 B0.5 V V UP 16 4.8 -36 43 -0.19 B2 N V CO 16 5.2 -20 35 -0.04 B1 V	CO 16 10.4 -19 23 0.04 82 IV CO 16 10.7 -27 51 -0.16 82.5 N V CO 16 19.6 -25 31 0.14 81 II ER 16 18.9 46 22 -0.15 85 IV OR 16 25.2 -47 30 -0.07 83 Q V CO 16 28.6 -25 3 -0.11 82 V	16 29.6 -34 38 -0.17 82 16 34.5 -42 47 09 10 5CO 16 34.2 -28 9 -0.25 80 14 16 35.7 -10 30 0.02 09.	CO 16 50.0 -38 0 -0.21 81.5 V CO 16 50.5 -37 58 -0.22 62 I KA 17 8.7 65 44 -0.13 86 I ER 17 16.3 33 7 -0.15 83 I 17 21.5 -62 50 82 V	HETA DPH 17 20.3 -24 58 -0.21 B2 I APMA ARA 17 23.1 -56 21 -0.13 B1 I ELTA ARA 17 23.1 -56 21 -0.10 B8 V PSILON SCO 17 28.9 -37 16 -0.22 B3 B I LPHA ARA 17 29.8 -49 51 -0.18 B2.5 E V AMBDA SCO 17 31.8 -37 4 -0.21 B1 V APPA SCO 17 31.8 -37 4 -0.21 B1 V	HER IT 38.7 46 I -0.18 B3 6 OPH IT 58.9 4 21 -0.04 B2 18 0.3 -22 46 B0 7 ARA 18 4.5 -50 5 -0.07 B0.5 2 HER 18 7.6 20 48 -0.15 82 0N SGR 18 22.4 -34 23 -0.02 B9	Et 18 25.0 -45 58 -0.18 83 1 18 29.9 -10 49 82 V YR 18 36.0 38 45 -0.00 A0 V 18 42.5 -35 39 -0.17 82 V GR 16 44.0 -27 1 -0.10 88 1	AV 18 49.7 -62 12 -0.15 81 TR 18 49.1 33 20 -0.01 07 GR 18 53.6 -26 19 -0.21 82 YR 18 57.9 32 38 -0.04 89 OL 19 4.8 -4 55 -0.10 69

£(8-V)	0.09	0.05	0.03 0.03	0.01	0.24 0.05 0.12 0.39	0.03	0.03	0.14	0.03
LAT	+12 45 + 4 52 -23 55 + 7 26 -13 17	+10 15 - 2 4 + 7 8 +10 31 -28 28	- 1 4 38 - 1 8 5 - 1 1 1 0 - 1 1 1 0	-35 11 + 5 45 -16 35 + 5 0	+ 0 58 - 0 6 - 1 0 3 - 3 5 1	+14 1 -44 59 - 1 18 - 3 13	-21 45 -52 28 -36 26 -144 44	-47 36 -16 59 -40 39 -16 11	-16 -49 36 -40 23 - 0 47 -61 33
LONG	70 37 56 22 353 36 67 58 31 46	78 42 59 43 75 13 81 48 5 31	62 29 41 35 65 11 75 49 65 5	340 55 86 4 55 25 88 22 78 22	88 87 9 88 89 89 89 89 36	307 32 31 56 95 29 94 50 6 6	80 5 350 0 75 15 65 59 97 22	66 50 96 39 78 51 97 39 20 30	162 12 78 47 88 16 109 57 67 35
FLUX	135.4 189.6 50.2 53.6	98.1 51.2 120.8 63.3 85.0	51.2 68.2 67.5 72.1	976.2 56.5 77.9 83.4	112.6 129.3 63.4 107.6 53.4	633.0 74.1 56.2 85.0	51.2 746.9 74.4 102.7	50.2 179.6 95.7 53.9	96.8 51.7 130.0 80.6 54.1
À	3.04 4.04 4.04 6.04	24.0 24.0 24.0 25.0 25.0 25.0 25.0 25.0 25.0 25.0 25	4.12 3.87 3.74 4.83	04 E E E	4 W 4 W W 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1-76 3-72 4-02 3-57 2-46	4.093 4.093 4.13	3.44 2.70 1.43 1.53	3.02 3.83 2.17 4.50 3.78
>	4.4.4 0.0.4 0.0.4 0.0.4	24.8.4 000.4.4 000.4.0	5.00 6.44 6.40 6.40 6.40 6.40	4.4.4.6 0.00.4.4 0.00.00.00.00.00.00.00.00.00.00.00.00.0	4 N 4 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	6.44 0.44 0.60 0.60 0.60	5.00 5.00 5.00 5.00 5.00 5.00 5.00	4 + 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	W 4 84 84 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
SEP	28.3 2.1 29.1	£	1.2	56.5 3 26.2 4 1.0 3	20.3 6 3.1 22.2 15.2 3	13.9	28.8	64.3	
DMAG	2.9	4	4.1	6.0	4466	3.7	8 •	w &	
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SP LUM	>	11 >11 > 11		63 62 85 86 111 85 V		, , , , , , , , , , , , , , , , , , ,	w	88 09 88 82 82 V	ш
ند	NO D WO O W W W W W W W W W W W W W W W W	9.5 E III 22 IIV 3 IV	a.w w	w 00 00 00	>>>> WW&W	2	2 2 2 3 B	32 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
B-V SP L	0.15 82 1 80.5 1 0.10 88 N V 0.13 83 1	0.03 89.5 III 0.16 83 E V 81 IV 0.15 83 IV	0.16 83 0.06 89.5 0.18 83 0.42 8 P	0.20 B3 0.08 B2 0.13 B6 0.12 B5	0.04 81 E IV . 0.23 81 E V 0.12 82 E V 0.01 07 V	0.25 82 III. 0.18 83 P V 0.12 83 IV 0.13 83 III.	0.18 83 E 0.14 65 0.16 82 E 0.04 81 PE 0.09 82	0.09 88 V 0.20 09 V 0.09 88 V 0.13 82 I	0.09 86 P 0.12 85 PE 0.04 89.5 0.02 80.5
-V SP L	22 59 5 -0.15 82 1 22 59 44 30 -0.10 88 N V 34 23 -0.13 83 1 -7 5 -0.01 80.5	45 3 -0.03 89.5 III 22 31 -0.16 83 E V 40 31 81 IV 47 50 82 III 35 21 -0.15 83 IV	3 32 -0.18 83 0 53 -0.06 89.5 5 30 -0.18 83 7 56 0.42 8 P	56 49 -0.20 83 48 51 -0.08 82 11 12 -0.13 86 50 15 36 23 -0.12 85	7 24 -0.04 81 E IV . 6 3 -0.23 81 E V 6 11 81 P V 4 47 -0.12 82 E V 3 49 -0.01 07 V	70 25 -0.25 82 III. 19 35 -0.18 83 P V 51 3 -0.12 83 IV 49 11 -0.13 83 III 37 29 -0.12 88 III	25 47 -0.18 83 E 47 5 -0.14 65 12 3 -0.16 82 E 1 13 -0.04 81 PE 42 59 -0.09 82	0 15 -0.09 88 V 8 54 -0.20 09 V 0 41 -0.09 88 V 0 4 -0.13 82 I 9 45 0.09 A3 V	2 10 -0.09 86 P 3 40 -0.12 85 PE 5 3 -0.04 89.5 9 16 -0.02 80.5 9 19 -0.11 85
A(1973)DEC B-V SP L	19 12.8 39 5 -0.15 82 1 19 16.6 22 59 80.5 1 19 20.7 -44 30 -0.10 88 N V 19 30.8 34 23 -0.13 83 1 19 35.4 -7 5 -0.01 80.5 1	19 44.1 45 3 -0.03 89.5 III 19 49.9 22 31 -0.16 83 E V 19 49.7 40 31 81 IV 19 51.3 47 50 82 III 19 58.0 -35 21 -0.15 83 IV	5.7 23 32 -0.18 83 9.9 -0 53 -0.06 89.5 4.1 25 30 -0.18 83 6.8 37 56 0.42 8 P.	20 23.5 -56 49 -0.20 83 20 29.2 48 51 -0.08 82 20 31.9 11 12 -0.13 86 20 41.4 50 15 82 20 46.4 36 23 -0.12 85	8.9 47 24 -0.04 81 E IV . 0.2 46 3 -0.23 81 E V 0.0 36 11 81 P V 6.8 34 47 -0.12 82 E V 7.4 43 49 -0.01 07 V	21 28.3 70 25 -0.25 82 III. 21 35.6 -19 35 -0.18 83 P V 21 41.1 51 3 -0.12 83 IV 21 45.8 49 11 -0.13 83 III 21 52.3 -37 29 -0.12 88 III	21 51.8 25 47 -0.18 83 E 22 6.5 -47 5 -0.14 65 22 20.2 12 3 -0.16 82 E 22 23.9 1 13 -0.04 81 PE 22 29.3 42 59 -0.09 82	4.0 -015 -0.09 88 V 8.0 38 54 -0.20 09 V 0.1 10 41 -0.09 88 V 0.3 40 4 -0.13 82 I 6.2 -29 45 0.09 A3 V	.7 42 10 -0.09 86 P .5 3 40 -0.12 85 PE .4 15 3 -0.04 89.5 .5 59 16 -0.02 80.5 .5 -9 19 -0.11 85
RA(1973)DEC 8-V SP L	9 12.8 39 5 -0.15 82 1 9 16.6 22 59 80.5 1 9 20.7 -44 30 -0.10 88 N V 9 30.8 34 23 -0.13 83 1 9 35.4 -7 5 -0.01 80.5 1	9 44.1 45 3 -0.03 89.5 III 9 49.9 22 31 -0.16 83 E V 9 49.7 40 31 81 IV 9 51.3 47 50 82 III 9 58.0 -35 21 -0.15 83 IV	5.7 23 32 -0.18 83 9.9 -0 53 -0.06 89.5 14.1 25 30 -0.18 83 16.8 37 56 0.42 8 P	23.5 -56 49 -0.20 83 29.2 48 51 -0.08 82 31.9 11.12 -0.13 86 41.4 50 15 82 46.4 36 23 -0.12 85	0.58.9 47.24 -0.04 81 E IV . 10.2 46 3 -0.23 81 E V 10.0 36 11 81 P V 116.8 34 47 -0.12 82 E V 117.4 43 49 -0.01 07 V	1 28.3 70 25 -0.25 82 III. 1 35.6 -19 35 -0.18 83 P V 1 41.1 51 3 -0.12 83 IV 1 45.8 49 11 -0.13 83 III 1 52.3 -37 29 -0.12 88 III	1 51.8 25 47 -0.18 83 E 2 5.5 -47 5 -0.14 05 2 20.2 12 3 -0.16 82 E 2 23.9 1 13 -0.04 81 PE 2 29.3 42 59 -0.09 82	2 34.0 -0 15 -0.09 88 V 2 36.0 38 54 -0.20 09 V 2 40.1 10 41 -0.09 88 V 2 40.3 40 4 -0.13 82 I 2 56.2 -29 45 0.09 A3 V	3 0.7 42 10 -0.09 86 P 3 2.5 3 40 -0.12 85 PE 3 3.4 15 3 -0.04 89.5 3 5.5 59 16 -0.02 80.5 3 16.5 -9 19 -0.11 85
A(1973)DEC B-V SP L	YR 19 12.8 39 5 -0.15 82 1 UL 19 16.6 22 59 80.5 1 GR 19 20.7 -44 30 -0.10 88 N V YC 19 30.8 34 23 -0.13 83 1 QL 19 35.4 -7 5 -0.01 80.5 1	19 44.1 45 3 -0.03 89.5 III 19 49.9 22 31 -0.16 83 E V 19 49.7 40 31 81 IV 19 51.3 47 50 82 III 19 58.0 -35 21 -0.15 83 IV	20 5.7 23 32 -0.18 83 20 9.9 -0 53 -0.06 89.5 20 14.1 25 30 -0.18 83 20 16.8 37 56 0.42 8 P. 20 20.9 24 21 -0.06 81 E	20 23.5 -56 49 -0.20 83 20 29.2 48 51 -0.08 82 20 31.9 11 12 -0.13 86 20 41.4 50 15 82 20 46.4 36 23 -0.12 85	6 20 58.9 47 24 -0.04 81 E IV . 6 21 0.2 46 3 -0.23 81 E V 21 10.0 36 11 81 P V 6 21 16.8 3447 -0.12 82 E V 6 21 17.4 43 49 -0.01 07 V	21 28.3 70 25 -0.25 82 III. 21 35.6 -19 35 -0.18 83 P V 21 41.1 51 3 -0.12 83 IV 21 45.8 49 11 -0.13 83 III 21 52.3 -37 29 -0.12 88 III	EG 21 51.8 25 47 -0.18 83 E RU 22 6.5 -47 5 -0.14 05 EG 22 20.2 12 3 -0.16 B2 E QR 22 23.9 1 13 -0.04 B1 PE AC 22 29.3 42 59 -0.09 B2	0R 22 34.0 -0 15 -0.09 88 V AC 22 38.0 38 54 -0.20 09 V EG 22 40.1 10 41 -0.09 88 V AC 22 40.3 40 4 -0.13 82 I SA 22 56.2 -29 45 0.09 A3 V	SC 23 2.5 3 40 -0.09 86 P SC 23 2.5 3 40 -0.12 85 PE EG 23 3.4 15 3 -0.04 89.5 AS 23 5.5 59 16 -0.02 80.5 QR 23 16.5 -9 19 -0.11 85

ULIRAVIULES FLUX OF THE BRIGHTEST STARS

E(8-V) 0.20 - 6 22 LAT 102.7 115 33 LONG FLUX 4.13 3 4.80 SEP 3.4 DMAG 2.1 Ē Ş 9071 SIGMA CAS 23 57.6 55 36 -0.08 BL 8-V ULTRAVIOLET FLUX OF THE BRIGHTEST STARS NAME RA(1973)DEC ¥